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THE TREATMENT OF ANORECTAL FISTULA.*

By JAMES P. TUTTLE, M.D.,

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WHILE the professional mind is so riveted upon the major operations of rectal surgery, one scarcely dares to venture before the public in an article upon so commonplace a subject as that of fistula; but those who have followed the course of post-graduate teaching have noticed in the past few years a rapidly growing interest in the subject of "diseases of the rectum"; they recognize its trend toward the position of an established specialty, and will appreciate the need of closer and renewed study of their various forms. Outside of the purely surgical, the treatment of these disorders has for a long time been largely in the hands of quacks and advertising specialists. Knowledge of or the time and patience necessary for the local and proper treatment of diseases of the rectum and anus has been so wanting with the general profession that people suffering from the minor ailments have been in self-defense driven to those outside of the pale of regular practitioners. The impression has become fixed among the laity that cutting was the only means of treatment known to or at least practiced by regular physicians in these diseases, and, dreading the knife, they have borne their inconveniences with great detriment to health and usefulness, or sought the assistance of some one advertising to cure them without operation.

The occasional (!) evil results of too much or unwise surgery about the rectum have been multiplied many fold in the minds of the public by these advertisers, and sufferers prefer to bear the aches and pains they have rather "than fly to those they know not of." One may say, however, that intelligent people will see the fallacies of these vain pretensions; but in answer we must say they are not wholly untrue, for many disorders of the rectum and anus can be relieved, if not cured, without operative procedures. And again, the public is not intelligent as a whole; they are in the large majority ignorant and confiding, especially upon subjects concerning health and disease. The medical literature which comes into their hands is largely of the quack circular or patent medicine order; with them there are not "doctors and doctors," but, with their inherited and educated reverence for the profession, they blindly trust whatever is written over the signature of "Dr."

On no other subject, perhaps, has this deception of the public been so great as on that of fistula. Incontinence, stricture, hæmorrhage, shock, blood poisoning, etc., resulting from operations for fistula, have been paraded as "Gorgons" by irregular practitioners until many believe them to be the rule rather than the exception. "Piles and fistula cured without cutting" has been a veritable gold

mine for these advertisers. Their pretensions to the possession of some secret knowledge or formula are in a measure borne out in the minds of the public by the cure of a certain number of cases which regular physicians had said were incurable unless cut, and many well-informed people are thus led to their offices for treatment.

I have in mind at present one minister, one lawyer, and two prominent business men who have all been under the care of irregular practitioners because the regular ones had failed to cure them or had told them that they could do nothing without operation. I yield to no one in maintaining a positive and consistent stand for radical treatment, but I do not believe in routine practice, and where other methods offer equal prospects of a cure I believe that they should at least be tried before resorting to the free use of the knife, especially where that use is attended with dangers of unfortunate secondary results. Of 337 cases of fistula operated on in the hospitals of New York, Boston, and Cincinnati, only 162—barely forty-eight per cent.—are even claimed as cures. Certainly we should obtain better results than this, and in private practice no doubt do so.

But is there only one cure for fistula which rectal specialists and surgeons are justified in using, and that the knife? Or can this trouble be cured by other means after the careful classification and selection of cases? I do not hesitate to say that in almost every case of anorectal fistula a certain amount of cutting is necessary upon the external surface, to drain the fistulous tract or straighten it out, so that it can be accurately followed with the probe or applicator to its highest point or opening into the intestine; but here, upon the surface, the necessary cutting ceases in the majority of cases, and the much-dreaded anæsthetic is rarely indispensable. Cocaine suffices for the prevention of pain in the treatment of a large majority of fistulæ, and many patients submit to operation under it who would rather carry their fistula to the grave than take chloroform or ether. I speak whereof I know when I say that it is by this and other local anæsthetics that irregular practitioners open up, straighten, drain, and cure many cases of fistula, their patients believing all along that no operation has been done.

The large majority of perirectal abscesses that eventuate in fistulæ would be cured, even though they originate in rectal perforation, by early and free external drainage, together with stimulating antiseptic washes; but it is not this class of cases that we have to deal with at present.

Fistula may be described as a chronic abscess about the anus. With an opening upon the skin only, it is called blind external fistula; with an opening into the gut only, it is called blind internal fistula; with openings in both, it is called complete fistula. The size of this abscess cavity varies in the different stages and varieties of fistula. In the blind internal variety it is usually large and contains more or less pus and sometimes gas or faecal matter. In the blind external variety the cavity is usually of considerable size in its first stage, extending up and around the gut, and more or less contracted in the second stage, according to the size of the opening upon the skin and its consequent

* Read before the Section in Genito-urinary Surgery of the New York Academy of Medicine, November 10, 1892.

free or limited discharge. In the complete variety it is more of a tubular canal than a cavity, except where it has resulted from blind internal fistula, or in those cases of horse-shoe and very tortuous fistula, when we may see both conditions—a large abscess cavity in one part and a tubular canal in another part of the tract.

In speaking of this subject I shall divide the simple fistula, according to Mollière, into subcutaneous and submucous. The subcutaneous pass between the skin or mucous membrane and the muscles of the rectum. They are usually tubular, short, and with small abscess cavities. They rarely extend above the internal sphincter. The submucous fistulae pass outside of the muscles of the rectum. They are irregular in their shape and course and may open at almost inconceivable distances from the anal region, some interesting examples of which I shall mention later on. The tract may be tubular or sacculated, indurated or soft. When they have an internal opening it is in the large majority of cases between the two sphincters, but it may be at any point within the length of the rectum. Both varieties may be blind internal, blind external, or complete. The symptomatology and aetiology I do not propose to speak of at this time.

Excepting traumatic, which are very rare, all fistulae arise either in ulceration or perforation of the rectum or in suppurative processes in the perirectal tissues.

However arising, the pathology of fistula is the same, excepting, of course, the specific forms of tubercular, carcinomatous, and syphilitic; it consists in a cavity or tract lined with a smooth granulation tissue, which is exactly analogous to that found lining the interior of a chronic abscess. The leucocytes forming the surface of this membrane are loosely adherent, and, constantly becoming free, form the chief part of the pus which drains from the fistula (Cripps). Beneath this granulation tissue and forming its base is a layer of fibrous tissue more or less thick and dense, according to the age of the fistula and the degree of inflammation which the parts have undergone. These granulations are said to be unhealthy, degenerated, "lardaceous" (Kelsey), and would not unite even were the walls in contact, and are generally considered the cause of the fistulae not healing. It is only the superficial ones, however, that are absolutely so, for down at their base these granulations seem to be healthy enough, only becoming unhealthy as they build themselves one upon the other, owing to the poor return circulation in these parts when the patients are up and about. If this were the only cause of non-union, and if all the granulations were unhealthy, the simple section of the rectal wall of the tract would not produce healing as often as it does, for that cutting does not touch the external wall. Again, it is said that fistulae do not heal because of the constant motion of the parts upon each other, thereby preventing their adhesion, and that section of the sphincters prevents this motion and allows healing (Ball, *Diseases of the Rectum and Anus*, p. 73). If this rest is all that is needed, can it not be obtained by a less severe method and one that is not attended by the dangers of such serious after-effects as cutting?

The truth is, these granulations, having a very poor

blood supply, have not the vitality to fill up a large space, and consequently degenerate before they meet in the center to unite the walls of the cavity. If the walls were close together throughout their entire area and kept at rest, and if the superficial, unhealthy granulations were scraped off, there would be no difficulty or delay in union. But the sphincters and the circular muscular fibers of the intestine, being constantly in a state of more or less contraction, draw the rectal wall of the fistula away from the external wall, and thus prevent union or break it up where it has occurred.

The rationale of the treatment of fistula is therefore to vitalize the granulation lining of the cavity and bring the walls in close contact with one another, at the same time making them as immobile as possible. Of course this can not be done if pus, gas, or other secretions are retained in the cavity, and it therefore involves the free external drainage of the tract; its tortuosities must be straightened out into one linear canal from its highest to its lowest point, at which there must be a free external opening. A formulated answer to How can all this be done? may be stated as follows: Convert the fistula into a cone-shaped cavity with its external opening for a base, scrape it out thoroughly, cauterize the surface, and paralyze temporarily the sphincters and gut as high up as the highest point of the fistula by stretching.

It will be seen from this that I am not in favor of the routine practice of cutting into the rectal wall at the highest point of the fistula and bringing the incision out at the anus. This doctrine and its natural sequence—"where the fistulous tract is separated from the rectal cavity by only a thin wall, force the director through into the gut at the highest point and cut straight out"—are not only dangerous both as to immediate and after results, but fail as often as they succeed. By it the pathological opening is generally left untouched. Excluding malignant disease, tuberculous and syphilitic cases, and cases in which previous operations have been done, I have yet to see a blind external fistula that can not be cured without opening into the gut, and I believe that where no pathological opening exists in the gut we are reprehensible for making one. This practice is not only dangerous in itself, but leads to carelessness in searching for pathological openings, and these are often overlooked where patient and persistent search would find them. In the past two years I have operated on five cases in which this operation had been performed and failed to cure. In each of these, by carefully laying open the tract, I was able to find the internal opening, and in no case was it within half an inch of the surgeon's previous incision, thus leaving a fistulous tract of this length or more untouched (Fig. 1). Not only were these cases not cured, but one was left with stricture of the rectum, one with rectal ulceration which it was very difficult to make heal, and one with partial incontinence.

The cause of incontinence is a much-discussed subject. In all the cases I have seen there has been cicatricial tissue at one or more points of the internal sphincter which interfered with the flexibility of the latter and prevented its closing. I believe the size and character of this cicatrix is the most important element in the production of inconti-

nence. Moreover, I have observed that these cases which show partial incontinence (I have never had a case of complete incontinence follow an operation for fistula) have been



FIG. 1.—A, external opening; B, internal opening; C, original external opening and line of surgeon's incision.

cases with large abscess cavities about the rectum, and this fact is borne out by my inquiries of patients who have suffered from incontinence after operations by other surgeons. The explanation of this is, the area of the outside wall of the abscess cavity exceeds that of the rectal wall just in proportion to the size of the abscess, and when the rectal wall is cut through it falls out against the external wall, failing to cover just that difference in area, according to Fig. 2. This must then be filled in by granulation tissue,

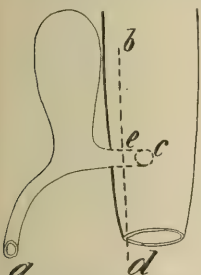


FIG. 2.—a, external opening; c, internal opening; b, d, original line of incision; e, c, portion of fistulous tract left untouched.

The treatment which I have practiced of late, therefore, differs somewhat from that laid down in the books, and will find able opponents; but my cases get well without confinement or incontinence, and its only drawback is the inability to obtain for it the same munificent fees that are obtained for operations under anesthetics.

Subtegumentary Fistula.—These little fistulae usually heal so quickly after being cut that one scarcely considers another method until he has seen one failure or a painful, obstinate fissure follow it. Having seen such results more than once, I have come to regard other methods as more effectual. If they are complete or incomplete, I wash them out thoroughly with a 1-to-1,000 solution of mercuric chloride or a fifteen-volume solution of peroxide of hydrogen.

I then inject them with equal parts of tincture of iodine and carbolic acid, or with a ten-per-cent. solution of nitrate of silver, and apply a compress of soft cotton. Burrowing tracts must be looked after and treated in the same manner. Rarely do I find a fistula of the subtegumentary variety that will not heal in ten or fifteen days by this method. It is well to stretch the sphincters as far as the patient will bear it without an anesthetic before applying the cautery, and to have the bowels well emptied in order that they may be confined for three or four days afterward. If

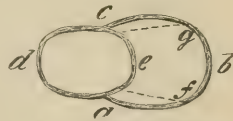


FIG. 2.—a b c, abscess cavity; a c e d, rectal cavity; f b g, space uncovered by edges of the rectal wall.

this should not succeed, little time will be lost, and we may then resort to the elastic ligature, which has succeeded in every case of this variety of fistula in which I have tried it. While I have not seen it do so, I believe the ligature may produce the same results as cutting, and this, together with the fact that it can not be used easily in blind or burrowing fistulae, makes me prefer the above described method to it. Where the tract is very short, superficial, and entirely outside of the anus, there is no objection to cutting, unless the patient offers it, and the results are rapid and satisfactory. Where possible, it should always be done with scissors. Where the fistula involves the anal orifice or any portion of the rectum, the injection method is the simplest, safest, and equally as sure. If the tract be entirely within the sphincter, it may still be treated by the injection and cautery method through either my own or O'Neil's speculum, whereas in this location the cutting operation can only be done under general anesthesia.

Submuscular Fistula.—This is a much more serious form of the disease, and a book of no mean proportions might be written on the different methods that have been devised for its relief. I shall consume no time in a review of such, but simply detail the methods which I have found satisfactory by personal experience. First of all, in determining the form of these fistulae, whether complete, blind internal, or blind external, a probe is seldom necessary. The educated touch will find the internal opening of a fistula more accurately and with less pain than any probe. The latter is most useful, however, in treatment for following up burrowing sinuses and straightening out the tract, but I rarely use it until the patient has been cocainized or anesthetized. In the blind external form, where there is no opening into the gut, the majority of the cases should be cured without making one. Communication with the gut subjects the freshly cut and curetted surfaces to infection by fecal matter and delays, by irritation, the healing even where sepsis does not occur. The abscess cavity should be freely opened by a circular incision about the anus, the sphincters stretched, the cavity curetted and cauterized with carbolic acid and iodine, and then lightly packed for twenty-four hours with antiseptic gauze. It is important that the procedures be carried out in the order mentioned, for stretching the sphincters before freely opening the abscess may cause by its tension a break in the rectal wall,

and the same danger exists in stretching after having curetted the abscess cavity and thus thinned its rectal wall. The packing should not be kept in over twenty-four hours, as it only holds the walls apart and prevents their healing rapidly. A probe-pointed syringe should be gently passed to the bottom of the wound each day and the parts irrigated with a 1-to-2,000 bichloride solution. Occasionally it will be necessary to stimulate healing in large abscess cavities by applying the iodine and carbolic acid a second or third time; but this is rare.

Blind internal fistulæ are nearly all associated with abscess cavities of considerable size. Most of these cavities extend downward toward the perineum, and with a flexible probe and proper speculum we can make out the point at which they most nearly approach the surface. These should be converted into complete fistulæ and treated accordingly. If the abscess cavity does not point downward, however, the case resolves itself into an intrarectal abscess, and it may be treated by stretching the sphincters thoroughly, opening, curetting, and cauterizing its cavity. The patient should be confined to bed, the bowels opened daily, and the rectum irrigated twice a day with a fifty-per-cent. saturated solution of boric acid.

Complete submuscular fistulæ have their internal opening, in the majority of cases, between the two sphincters. Where such is the case and where no abscess cavity has burrowed upward beside the rectum, the rubber ligature has proved in my hands a most satisfactory treatment. The ligature, however, should never be passed through a tortuous tract. The circumanal tissues should be cocaineized and the fistula opened to a point immediately below its internal opening. By this the tissues to be cut through by the ligature will be decreased, the fibers of the external sphincters will be cut squarely across, and there will be less danger of disabling even this muscle. Before the ligature is applied the cutaneous tissue in its track should be cocaineized and cut through with a knife in order to avoid the pain which this procedure sometimes causes. When the abscess cavity has burrowed upward, or where the fistulous tract has passed outside of the internal sphincter and opened into the gut above that muscle, this treatment must be modified. It is in these cases, when treated by the ligature or ordinary cutting operation, that we meet the dangers of incontinence and rectal ulcerations as described above. Minimize them as we may, they are actual dangers and should be avoided, if possible, in our practice. It is my custom, therefore, to reserve these procedures as a last resort. After making a very free external opening of the fistulous cavity, the sphincters and the gut should be thoroughly stretched as high up as the highest point of the cavity; the internal orifice should then be found and thoroughly curetted, together with the rest of the abscess walls. This opening should then be tightly packed from the fistulous side with a narrow strip of iodoform gauze and a small piece of the same laid over the orifice on the rectal side through a Sims vaginal speculum; the fistulous cavity should be tightly packed with the same material. The bowels should be confined and the patient kept perfectly quiet for five or six days. By this time the internal orifice will

be entirely closed or healthy granulation will have been established, which will proceed to accomplish the same result promptly. The packing should be renewed from the fistulous side on the third or fourth day. After the internal orifice has healed, all packing should be discontinued and the cavity treated by irrigation as in blind external fistula. I have not had this method fail me save once, and that in a patient who would not bear restraint. In his case the tract being perfectly straight and ready for the ligature, it was applied and a happy result soon followed. It follows naturally that where the fistulous walls have been rendered healthy by the thorough draining and curetting the cure will be more prompt if for any cause the ligature or cutting operation must needs be done.



FIG. 3 a, external opening; b, opening into urethra; c, tract encircling right side of anus.

The importance of finding the internal opening of a fistula and never opening the gut until it has been found is well illustrated in the following case (Fig. 3):

Mr. S., aged twenty-four, was brought to my office on August 3, 1891, by his physician, who said the patient had a fistula that would not heal and needed to be operated on. He was very sensitive to pain, and at his request I decided to give him chloroform and operate in my office, the doctor having assured me that it was a small affair and that it could be safely done there. The fistulous abscess almost entirely surrounded the rectum, running up along its side so closely that only the thinned rectal wall intervened between the two cavities. After laying it freely open and searching carefully I failed to find any opening into the gut. I therefore stretched the sphincters and scraped and cauterized the cavity and sent the patient home. At first the wound did well and looked as if it would promptly heal; but noticing an unusual moisture about it, I became suspicious of it and adopted the following expedient: Having thoroughly cleansed and dried the cavity, I had the patient urinate, and in the midst of the act shut off the stream at the mentus. After a few moments I examined the cavity again and found in it something like fifteen drops of urine. The case was, of course, one of urinary fistula, but the tract leading up to it was so small that only the finest eye probe could be made to enter it. Had I followed the usual routine the rectal wall and both the sphincters would have been uselessly cut and the after-effects would undoubtedly have been bad.

Complicated Fistulæ.—Of these, the more important varieties are—long, tortuous fistulæ opening at distant

points; horseshoe fistulae; watering-pot fistulae; recto-vaginal fistulae; recto-vesical fistulae.

Long, Tortuous Fistulae.—It is remarkable to see what a deep, long, burrowing, tortuous tract may result from a small internal fistulous opening situated just within the external sphincter. I have seen two of these tracts opening at the upper border of the sacrum and one upon the anterior aspect of the trochanter major, all of which began between the external and internal sphincters. Imagination can scarcely limit their possibilities, for no membrane or fascia seems to hedge them in. Where they burrow subcutaneously, as in the following case, taken from my notebook, they are easily dealt with:

Mr. T., aged thirty-five, has had fistula for five years. It was much swollen at one time and has always been painful. No tubercular, carcinomatous, or syphilitic history. No stricture, hæmorrhoids, or other disease of the rectum. Small crater-like ulcer can be felt and seen through the speculum, half an inch inside of the external sphincter on the right side, from which, on pressure over the sacrum, there exudes a drop of pus. There are two fistulous openings—one about the middle, the other at the upper border of the sacrum and almost in its center.

The fistulous tract being superficial, it was laid open from above downward. It passed first to the left side of the rectum, then doubled upon itself and entered through the right side at

above the anus. Internal orifice can be felt on the left side and between the two sphincters. (Fig. 5.)

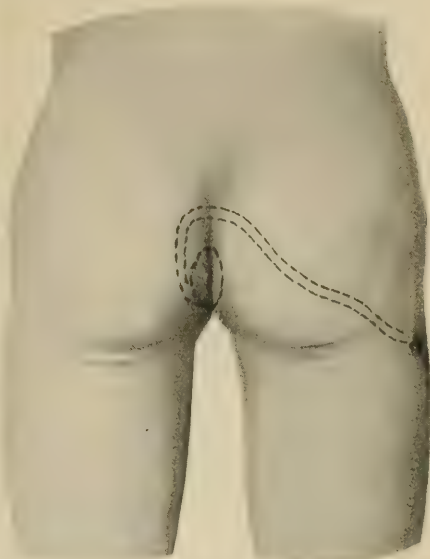


FIG. 5.

Operation.—The external opening was enlarged and a No. 12 F. steel sound introduced into the tract to the point near the sacrum. This was cut down upon and a free counter-opening made at this point. The fistula was followed down from here and laid open inch by inch to the internal opening. The upper tract beneath the muscle was scraped out, a drainage-tube inserted, and the wound dressed antiseptically. Patient was kept in bed two weeks, and made a good recovery at the end of four. The large amount of induration about the thigh and buttocks soon began to be absorbed, and at the end of four months it was entirely gone.

It is then unnecessary to cut through these large masses of tissue always. The counter-opening, drainage, and proper treatment of the proximal end of the fistula will cause the distal tract to heal, and save the patient much shock and loss of time. This case brings up the management of those cases in which there are large masses of cicatricial or connective tissue about the fistulous tract. It is held by many that it is impossible for the fistula to heal while this remains. This appears to me to be putting the cart before the horse. The fistula is the cause of this growth of tissue, and not vice versa. To cure a disease, remove the cause if it still be existing and effective. It is surprising how rapidly and completely these masses will be absorbed when the fistulous tract has been properly closed, and while an incision into them in two or three directions may hasten their removal, neither this nor dissecting them out is necessary to the cure of the fistula.

Horseshoe Fistula.—This expression was originally employed to describe a fistula surrounding the posterior part of the rectum, with one internal opening in the center of

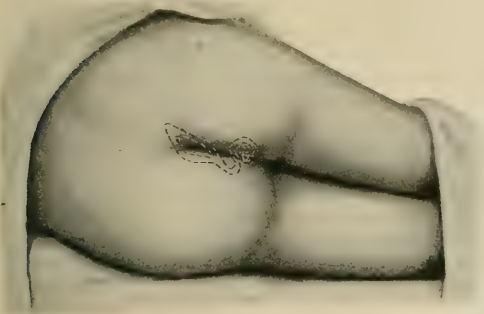


FIG. 4.

the point mentioned. (See Fig. 4.) Some fibrous tissue was dissected out from the bottom of the tract, the wound packed with iodoform gauze, and the patient was well in three weeks.

The following case, however, was more interesting, showing how these tracts may involve important tissues:

Mr. R., aged fifty, Italian. Had an abscess about anus five years ago. It broke, discharged, and healed up. After six months he began to suffer pain in his back and right side of the pelvis. The pain extended around to his hip and he found much pain upon walking or standing erect. A small lump formed on the outer aspect of his thigh, which finally opened and discharged considerable pus. About this time he also noticed a discharge about the anus. This condition still exists.

There is a fistulous opening upon the thigh at the point above mentioned, and a probe introduced here runs transversely backward close to the hip, beneath the gluteus maximus muscle, the gluteal artery, and the lesser sciatic nerve, to a point about an inch anterior to the border of the sacrum and five inches

the gut behind and one external opening on either side of the tendon of the external sphincter. It has, however, come to signify any perirectal abscess surrounding the posterior wall of the rectum with one or more fistulous openings into it. It may therefore be a complete, blind internal, or blind external fistula. The abscess cavity is usually hour-glass shaped, connected in the center by a narrow channel running between the tendons of the levator ani and external sphincter muscles. There may be one or more internal openings or none, and one or more or no external openings, only one of either kind being necessary to constitute a fistula. The point of the gut or skin at which these openings are found is variable both as to the circumference and height.

The following case will illustrate the condition and its treatment:

Mr. L., aged twenty-six, was sent to me by his physician in December last with the following history: Some four months previously he had been troubled with an ischiorectal abscess on the left side which was opened by the doctor and healed very soon without any complications. About two months later he began to suffer pain in that region again, and soon noticed induration and swelling on the right side. This was also pronounced an abscess at the time, but, notwithstanding every precaution on the part of the patient and the assiduous attention of the doctor, it would not heal. He being very sensitive to pain, I agreed to examine him and operate at the same time, and did so on December 28th, using ether as an anæsthetic. The probe ran into the abscess cavity on the right side five inches and a half upward and impinged upon the thinned wall

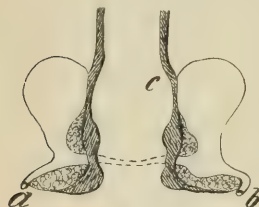


FIG. 6.

of the gut (Fig. 6), but I could find no opening into the rectal cavity. Enlarging the external opening by a circular incision around the posterior border of the anus, I found a narrow tract running behind the rectum about three fourths of an inch above the margin of the anus, and entering into a cavity on the left side.

This cavity was closed in

by only the united skin at the point of the old incision. I cut down upon the probe at this point and, enlarging the incision, converted this into a cone-shaped cavity with apex upward. Failing still to find an opening into the gut, I dilated the sphincters thoroughly and searched the inside of the rectum for it, but in vain. I then scraped out the cavities thoroughly, cauterized them, and packed them lightly with iodoform gauze. The patient being in an anæmic, run-down condition, the parts healed slowly, but at the end of ten weeks he was well. The packing was only introduced three or four times after the operation, irrigation being depended on to keep the parts clean and free from pockets. Cutting the gut in this case would have necessitated a double section of the sphincters to be thorough, and, from the size of the abscess cavity, I am sure would have resulted in incontinence. Had I found an internal opening below the internal sphincter I should have laid the gut open from this point out, but had it been above the internal sphincter I should have scraped and cauterized it only, trusting to granulation healing it rather than run the risk of incontinence and stricture.

Watering-pot Fistula.—This term has been applied to fistulae having several external openings. These openings are usually connected with one large abscess cavity by long or short fistulous tracts. Their management consists in laying these several tracts open up to the main abscess cavity, which is then treated as a simple complete or blind external fistula. But sometimes this involves the destruction of too much tissue and subjects the debilitated patient to great shock. Under these circumstances it is better to locate the main abscess cavity by introducing several probes in the different openings and cutting down upon them at the point of their convergence, lay open the cavity freely, and treat it as a simple fistula from this point. The several tracts are then treated by scraping, cauterization, and drainage. By these means I have succeeded in curing two cases with very small incisions, where the laying open of the several tracts would have involved a large amount of tissue, the healing of which would at least have been doubtful owing to the debilitated condition of the patients. Where the tracts involved are short, however, and the tissues involved are not great, it is better to lay them all open.

If there are two or more openings into the rectum and it is found necessary to cut into the gut, only one point should be cut at a time, as double section of the sphincter is frequently followed by incontinence or stricture. In the majority of cases the other tracts will heal when one has been cut through, and the results are much more satisfactory.

Recto-vaginal Fistula.—This variety comes under the observation of the gynecologist much more frequently than under that of the rectal surgeon. They are usually due to pressure or traumatism at childbirth or to syphilis. Injury by instruments, pressure from foreign bodies in the vagina or rectum, recto-vaginal or vulvar abscesses, or ulceration of the glands of Bartholin may all cause it. Dr. Emmet believes it frequently due to phagedenic syphilitic ulceration. It may be high up or low down in the vagina, large or small; but, with the exception of those just below Douglas's *cul-de-sac*, where there is only a very thin space between the rectum and vagina, they usually run an oblique course. The abscess cavity is generally small and may be cannular and lined with reflected mucous membrane from the vagina. The opening in the vagina may sometimes be very hard to find, owing to the valve-like folds of its upper border, but the educated touch can usually make out the rectal opening without great difficulty. Where there is escape of gas and fecal matter through the vagina an intense erythrit is likely to be developed.

Many plans of procedure have been devised for the treatment of these conditions. Cauterizing occasionally cures, but the tract should be first scraped and the sphincters dilated. No treatment for fistula offers any assurance of cure without this last precaution. Denudation and suturing as for vesico-vaginal fistula, either upon the vaginal or rectal surface, have long been practiced, but can not be said to be satisfactory. Failures are as frequent as cures by this method.

Dr. John Rhea Barton (*Amer. Jour. of the Med. Sc.*, 1839,

p. 305) first published his device for the cure of this condition which has been appropriated by a number of the profession, and improved in detail by Dr. Isaac E. Taylor, of this city. This operation consists in connecting the fistulous tract, at a point near the rectum, with a counter-opening in the perinæum, thus forming a complete recto-perineal fistula as well as a vagino-perineal fistula. The recto-perineal fistula is then treated as an ordinary fistula involving the same tissues, by ligation, section, or scraping and dilating the sphincters. The vaginal portion of the fistula is scraped out, cauterized, and left to heal by granulation, which it generally does promptly and without any complications. Since, however, intestinal antisepsis has become a possibility, and we can do a plastic operation about the rectum with comparative assurance of immediate union, I have been practicing the method devised by Saucerotte in 1798. As perfected, the operation consists in the careful preparation of the patient for several days by dieting, daily laxatives, and the administration of naphthol and salicylate of bismuth in full doses three or four times a day. In addition to this, the rectum and vagina are irrigated twice a day with a saturated solution of boric acid. When the patient has been anesthetized the parts are scrubbed and cleaned antiseptically, the perinæum is cut through from the outside by a straight incision into the fistulous tract, a stiff grooved director previously introduced into the tract guides the operator in the line of incision. The perinæum having been divided, the fistulous tract is dissected out and the wound is treated as a complete perineorrhaphy. The rectal mucous membrane is first carefully sutured with chromicized gut, the divided ends of the sphincters are picked up and united by the same, the perinæum is drawn together by deep silver-wire or silk-worm-gut sutures, introduced after the manner of Dr. Cleveland, and the mucous membrane of the vagina is sutured with interrupted silk sutures. The parts are then dressed with iodoform gauze in the vagina, a tube is placed in the rectum for the escape of gas and iodoform gauze is placed well up around it and over the perinæum, and the knees are tied together. The bowels are confined for two days only, as I believe that more harm results from large, hard stools than from early soft movements. Following each movement, and at least twice a day after the first forty-eight hours, the rectum is irrigated through a



FIG. 7.

rectal irrigator with the saturated boric-acid solution. The irrigator which I use and which is here depicted is a very valuable instrument in the general treatment of rectal diseases, and it is light, easily cleansed, and inexpensive.

The patient is kept in bed for two to three weeks by this operation, the perineal and vaginal stitches being removed about the seventh day, and recovery may be considered established at the end of about four weeks. This is the one exception in which dissection and immediate union of a

fistula are feasible and scientific, except perhaps those cases of straight tubular tracts where the angular wound left after dissection can be easily drawn together. The difficulty of dissecting out the different burrowings of tortuous fistula, the uncertainty of proper apposition and still more of union, and the length of time necessary, make this method undesirable, to say the least, save in most exceptional cases. The rapidity of cure where it succeeds is brilliant to be sure, but it does not justify the risk it involves.

Recto-vesical and Recto-urethral Fistulae.—In the first of these the tract is generally very short. They are due to congenital defect, injury during lithotomy, ulceration, malignant growths, or pressure of a stone in the bladder. Where the opening is low enough down to be reached through the rectum it is proper in these cases to operate as in vesico-vaginal fistula. Cauterization with nitrate of silver or the Paquelin cautery may succeed in many small openings, but as a rule it is only time lost to try it. When the tract is long and oblique, running from the bladder to an opening low down in the rectum, a counter-opening in the perinæum should be made, as in recto-vaginal fistula, and the rectal portion of the fistula treated by the ligature or cautery; the vesical portion should then be treated by stimulation and cauterization, if necessary resorting to perineal section and drainage of the bladder.

In urethro-rectal fistula we have an entirely different condition to deal with. The tract is longer and more tortuous, there is more or less of an abscess cavity, the dribbling of the urine through it is not constant, but periodical with the calls to urination. Its most frequent causes are stricture of the anterior urethra; accidental wounds of the rectum in operations on or through the perinæum; perforation of the rectal and urethral walls by foreign bodies in one organ or the other; abscesses of the prostate or between the rectum and urethra; calculi arrested in the prostatic or membranous portion of the urethra; deep ulcerations of the urethra [?] or malignant growths. The success of treatment in these cases will depend largely upon the cause of the condition. It is needless to say that no operative procedure—nothing, in fact, but palliative treatment—should be directed to the fistula itself in either of the last two varieties when due to malignant growth. It is almost useless to say that when due to stricture of the urethra this should be removed before we can hope to cure the fistula. In this variety I believe in conjoined internal urethrotomy and perineal section after the manner of Harrison, at the same time stretching the sphincters, scraping out and cauterizing the rectal end of the fistula, or, if the rectal opening be of considerable size, closing it up with silver-wire sutures, as in the operation for vesico-vaginal fistula. If the fistula be due to abscess, either perineal or prostatic, the proper course to pursue will be to make a thorough opening of the cavity through the perinæum, scrape it out, and treat the condition as two separate fistulae—the rectal by dilatation of the sphincters and packing with or without the rubber ligature, and the urethral by drainage and packing as is practiced by genito-urinary surgeons.

SOME PRACTICAL POINTS REGARDING THE EXCESSIVE EXCRETION OF URIC ACID.*

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ON looking over the records of determinations of uric acid made in my laboratory during the past two years, it occurred to me that it might interest this society to learn what conclusions of a practical nature might be reached from a consideration of these records in their relation to the clinical histories of the cases studied.

The number of individuals in whom the uric-acid excretion was studied is a hundred and sixty-three, and the number of determinations, all made by the Ludwig-Salkowski method, is considerably over six hundred.

From so large a number of observations many statements may be made with positiveness, but, in addition to the conclusions which we may consider to be established beyond doubt, there are others that must be advanced with some reserve and that are to be regarded as suggestions resting on more or less acceptable evidence rather than on established facts. But such suggestions, if carefully considered, are often of much value in helping to establish general ideas of a question, and I feel disposed to speak of this, as the subject in point affords considerable material of this character.

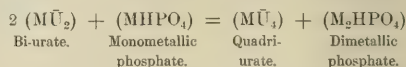
The first question that suggests itself for discussion is, What is the significance of the separation in the urine of uric acid or urates? Can any inference be drawn from such separation as to whether uric acid is present in excess or not? This is a question of considerable practical importance, for if the observation of precipitates is of no value whatever, it is high time that this should be generally known. But if, on the other hand, it can be shown that such observation is of value, it is desirable that we should try to fix the range of its use and the nature of its limitations.

The first point to which I would call attention is the fact that we must distinguish between the significance of separated urates and that of separated uric acid. You will pardon me if, in presenting this fact, I remind you of certain things which are well known, in order to make clearer others that are less familiar.

The quantity of uric acid which exists in solution in the urine as free uric acid is so small, if any, that we need scarcely consider it. The uric acid of the urine is present in combination with sodium as urates, or, as Roberts has pretty satisfactorily shown, as quadri-urates—that is, as salts in which a molecule of a bi-urate salt is in loose combination with another molecule of uric acid. The bi-urates do not exist in the urine as such; in fact, they exist nowhere in the body under normal conditions and are only found in the topoi of gout. The separation of the quadri-urates from the urine as amorphous urates is merely a question of solubility. As is well known, a large quantity in a given volume and a low temperature favor this separation, and it is an important fact that one does not often

meet with a separation of urates in a twenty-four-hour sample of urine unless the uric acid is in actual and decided excess. In looking over my records I find that, with very few exceptions, the urines from which the urates had separated contained a greater proportion of uric acid than belongs to health. We come therefore to the conclusion that a deposition of urates in a sample of twenty-four-hour urine is pretty reliable evidence that the uric acid is in excess.

The case is very different with urines in which there has been a separation of uric-acid crystals. While in the case of the urates the separation is dependent merely upon insolubility, in the case of free uric acid the separation depends upon a process of decomposition of the quadri-urates, a fact which has been brought out by Roberts in his recent Croonian lectures. A quantity of amorphous urates—that is, quadri-urates—is carefully prepared from fresh urine and dissolved in distilled water (by heating to boiling and constant stirring). This is set aside for twenty-four hours. During this time a quantity of uric-acid crystals separate and the amount is not increased on further standing. Now, it is a fact of considerable interest that analysis shows the amount of free uric acid in the sediment to be equal to the quantity of uric acid that remains in solution as a urate. The explanation of this is that the amorphous urates, consisting of quadri-urates of sodium, potassium, and calcium, give up one of the two molecules of uric acid of which they are composed, the other molecule remaining in more stable combination with the bases as bi-urates, so that we now have in solution one half the amount of uric acid in combination with the whole of the base present in the quadri-urate. A similar decomposition occurs in the urine itself, but, as the urine contains many mineral substances in solution, the process is modified and is more complex than in a pure solution. Among the most important of these mineral salts are the phosphates of the alkali metals, which in great degree regulate the reaction of the urine—the urine being acid when monobasic phosphates or monometallic salts preponderate, alkaline when the dibasic phosphates are in excess. The manner in which the uric-acid separation is effected is as follows: First, the water of the urine causes the decomposition of the quadri-urates into uric acid and bi-urates. In this way one half the uric acid is set free, as in the case of the free aqueous solution above mentioned. Now, the bi-urate which remains is at once transformed in the presence of the monobasic phosphates (acid) into a quadri-urate, for by a double decomposition two atoms of bi-urate with one of acid phosphate change into one molecule of quadri-urate and one of dimetallic phosphate as follows:



This process of decomposition and recombination goes on in an acid urine until all the uric acid has been liberated.

From what has just been said, it is clear that the acidity of the urine is an important factor in determining the depo-

* Read before the New York Clinical Society, May 26, 1893.

sition of uric acid. In fact, every acid urine, if protected against putrefaction, will deposit most of its uric acid in the course of time. The rapidity of the deposition, of course, varies greatly, but every acid urine has a tendency to deposit its uric acid. Certain influences are, however, at work to inhibit and delay this liberation. Important among these influences is that of the saline constituents of the urine, especially the neutral dipotassic phosphates, which in very small amounts have a pronounced inhibitory action. Another influence of importance is that of the coloring matter. Urines rich in coloring matters deposit their uric acid more slowly, other conditions being similar, than those which are light in color; and urines deprived of their coloring matter by filtration through animal charcoal show a much more rapid decomposition of the quadrurates than before filtration. We must thus recognize numerous influences at work in determining the precipitation of uric acid—influences which we must admit to be only imperfectly understood, but among which it seems fair to regard the factor of acidity as the most important. It requires no argument to show the important bearing of these conditions upon the formation of uric-acid calculi, but this is a subject aside from the present line of inquiry. What chiefly concerns us here is the fact that in many urines which contain no excess of uric acid a sediment is formed soon after or even before the urine leaves the bladder. Of course, urines that contain a large amount of uric acid per unit volume are more liable to deposit a uric-acid sediment than urine containing a smaller amount, everything else being equal. But the point to be emphasized is that other influences are so great that the difference in the amount of uric acid present has little to do in deciding the result. I noted with interest, on looking over my records, the circumstance that of the urines in which uric acid was deposited soon after the bladder was emptied, there were many more urines in which the uric-acid content was normal than in which it was excessive. We may therefore come to the two following conclusions without much hesitation:

1. That a urine from which there is an early separation of uric acid gives us no real reason to think that the actual content of uric acid is excessive.

2. That a urine from which the urates separate gives us good reason to believe that there is an actual excess of uric acid, and that this probability is increased if the density of the urine is less than 1.025.

Unfortunately, the converse of the latter statement is not true; we can not conclude from the circumstance that a urine does not deposit its urates that it does not contain too much uric acid. How far this is from being true is shown by the fact that a very large majority (more than three quarters) of all the urines with excessive uric acid of which I have records did not deposit their urates.

In speaking of an excessive or normal excretion of uric acid, it has been assumed that we possess a standard for comparison on which reliance can be placed. This standard is the ratio of the uric acid excreted in the twenty-four hours to the urea excreted in the twenty-four hours. As already pointed out elsewhere, the ratio of uric acid to

urea, in a healthy adult upon a mixed diet, varies little from day to day. In different individuals the fluctuations in health are considerably wider, but not so wide as one might expect. The statement was made by me a year ago that the normal ratios had been found to vary from 1 to 45 to 1 to 55 or 60. Since then many more individuals have been studied, and it may be safely stated on the strength of this experience that the normal ratio is expressed by these figures. In most healthy individuals the proportion is not far from 1 to 50. Instances certainly occur in which the ratio averages somewhat higher than 1 to 45 in persons whose health is apparently of the best, but this is so exceptional that we need scarcely take account of it. Whenever the ratios of an individual average higher than 1 to 40 we are justified in regarding this case as one in which an excess of uric acid is being excreted. Whenever the ratio runs higher than 1 to 35 the excess of uric acid is to be considered large. I have never met with continuous ratios so high as this except in persons whose health was distinctly impaired. A proportion of uric acid to urea higher than 1 to 30 indicates very great excess of uric acid, and is only rarely observed. A ratio higher than 1 to 20 I have never found.

I wish now to ask your attention for a few minutes to some points regarding the clinical and pathological significance of excessive uric-acid excretion. This subject is, to my mind, more interesting than any other connected with the uric-acid problem—far more interesting, for example, than the purely chemical considerations that refer to the separation of uric acid from the urine.

The first point of general interest which I should like to emphasize is what may almost be called the universality of uric-acid excess in functional disease. I know of nothing in connection with my work upon this subject that caused me greater surprise than the constantly increasing category of maladies in which too much uric acid was found. It is not my intention to consider here in detail the individual morbid states that are associated with too great an output of uric acid, but rather to touch upon the distribution of these states in their wider relation to the subject under consideration. It is convenient to group the cases in which too great an output of uric acid is found in two general classes, the first comprising those cases where the excess is of continuous occurrence, the second those where the excess is of transient duration. In the first category are to be found, in my experience, every case with pronounced neurasthenic symptoms, most cases of simple anæmia, probably most blood diseases, certainly leucæmia, most cases of chronic gastric dyspepsia, most cases of chronic intestinal indigestion, cases of *petit mal*, many cases of chronic nephritis, many cases of phthisis, and chronic febrile states generally. This list might be extended almost indefinitely, but the extension would serve to confuse the subject rather than clear it. For example, most phthisical patients excrete a good deal more uric acid than they ought, but it is not at all clear that this excess is related to the tubercular process in the lung; it is far more likely that the excess depends upon the fever, or upon the digestive derangements, or upon the associated

anæmia. Similarly, in cases of chronic nephritis it is more than probable that the increased output is related to the accompanying anæmia. It would certainly do much to clarify our understanding upon this subject if it could be shown that in all these apparently varied conditions there is a single underlying condition to which the increased output of uric acid might be referred. There are, indeed, some facts to which I shall later make reference, which suggest the view that the excessive uric acid elimination usually bears a definite relation to a state of leucocytosis, but, unfortunately, we are not in a position to more than hint at the possibility of this being so. We must content ourselves for the present with the knowledge that anæmia is one of the important associations, or causes, if you prefer, of excessive uric-acid output, and that this may be at the bottom of a large proportion of the chronic states we are considering. I have been surprised to find how many neurasthenics whom there was no reason to think anæmic have shown a decidedly reduced proportion of hæmoglobin. But while it is possible that we should refer to anæmia the excess of uric acid in some neurasthenics, it is more likely that in most of these cases the excess depends upon the associated disorders of digestion.

The conditions in which there is a transient excess in the output of uric acid are varied. Any acute disorder of gastric or intestinal digestion appears sufficient to increase temporarily the elimination of uric acid. A very large meal often increases considerably the relative output of uric acid for twelve, twenty-four, or thirty-six hours in a perfectly normal individual and without giving rise to any appreciable disorder of digestion. The use of a considerable quantity of alcohol has the same effect, which is especially pronounced in the case of wines that contain much sugar. The effect of a large amount of sugar (eight to sixteen ounces of saccharose a day) is apparently to increase uric-acid excretion. It is important to note here that the influences just mentioned are much more operative in producing an excessive output of uric acid in persons whose uric acid is habitually a little in excess than in persons who are quite normal in their output. Other conditions that are associated with a temporary increase of the uric-acid output are the following: Almost any form of functional headache, including the migraine paroxysm, and seizures of *grand mal* (the increase being present in these cases on the first or second day after the seizure).

The occurrence of excessive uric-acid elimination in so many apparently different conditions leads one to inquire whether these conditions have any clinical feature in common through which they may be related to the uric-acid excess. Apparently, all that can be said in this connection is that all, or nearly all, the states which are characterized by uric-acid excess are associated with signs of some disturbance of general nutrition, and it may be said, in general, that the greater the excess the more pronounced are the evidences of nutritive disorder. We are not yet in a position to assert that the converse of this holds good—that all, or nearly all, disturbances of nutrition are accompanied by an increased uric-acid output—yet I can not but suspect that a very great extension of our observations would lead

to the view that there are few derangements of nutrition, whether transient or prolonged, which fail to exhibit some degree of this excess. If we accept this view of the clinical meaning of uric-acid excess, it is clear that this conception must modify not a little some of the currently accepted notions, one might almost say prejudices, upon this subject. It becomes necessary to do away entirely with the idea that uric-acid excess is related specifically to any particular clinical state, and it leads us to inquire into our use of certain current expressions which have originated in misconceptions and have been passed on from writer to writer. After what has been said, it requires no argument to show that the expression "uric-acid diathesis" is one that should be used as little as possible, or, if used at all, should be used with a clear understanding of the vagueness of the term. What right have we to speak of a "uric-acid diathesis" as a condition in any way distinctive, when we know that an excessive output of uric acid is merely one of the expressions of a great variety of nutritional disturbances? What can be meant by the expression more than such excessive elimination continued for a considerable period of time? The word diathesis in this connection is deprived of any special meaning, and, to my understanding, had better be used for clinical states having more fixed characters if it is to retain any meaning at all. Another expression which appears to me objectionable is "lithæmia," as ordinarily employed for designating the excess of uric acid in the urine which is construed to mean an excess of uric acid in the blood. For we have seen that uric-acid crystals may separate in the urine when there is no excess whatever of uric acid, and may not separate when there is an excess. When uric-acid crystals separate in the urine soon after it is passed, we may assume that there is some disorder of nutrition back of this separation, which gives rise to it by causing too acid a urine, or one in which the salts or other constituents of the urine are defective. But, while these deviations in composition are surely abnormal, they must be sharply distinguished from the real excess of uric acid which the proper use of the word lithæmia implies. It is better to admit our ignorance of the real nature of these disturbances, and speak merely of an excessively acid urine with separation of uric acid, or of a deposit of urates, than to mask our ignorance with a euphemism like "lithæmia." If we have reason to suspect that the blood actually contains too much uric acid, let us make use of the term "uric acidæmia," suggested by von Jaksch.

Before speaking of the diagnostic and prognostic significance of an excessive uric-acid output, or of the treatment that appears best adapted to it, I should like to make brief reference to certain general physiological and pathological considerations. In the first place, the idea that uric acid is formed in excess in consequence of defective oxidation must be regarded as having no good foundation, although it is a current view. Senator, and also Naunyn and Riess, found that there was no distinct increase in uric acid in dogs in which dyspnoea had been experimentally produced. Bunge, working much more recently, found the uric-acid output in patients with respiratory disease to vary within

the normal limits. The idea that uric acid is a product which is in process of becoming urea is part of the sub-oxidation theory and must fall with it. Of course it is easy to see how, upon paper, the oxidation of solutions of uric acid may be converted into one of urea, but, unfortunately, there is no evidence that this really occurs in the body. Then, again, the view that uric acid is formed by the activity of the renal epithelium must be regarded as mere hypothesis. It is, in fact, one of those opinions that are based merely upon a more or less skillful juggling with chemical possibilities that are suggested by the contemplation of formulæ, unsupported by experimental evidence. Those who formulated this opinion did indeed make use of the supposition that the blood never contains any uric acid. "How is it," said they, "that the blood contains no uric acid if this uric acid is really formed anywhere else in the body than in the kidney?" This view of the problem is, however, upset by the fact that von Jaksch and others have found uric acid in the blood in anæmia and other conditions in appreciable quantities. The reason it is found in health in extremely small quantities only is probably because the small quantity formed is very rapidly eliminated by the kidneys. That the renal epithelium can have little or nothing to do with the formation of uric acid is further shown by the experiments of Schröder, who found that in birds from which the kidneys had been taken uric acid continued present in the blood and accumulated in the liver. The balance of evidence at the present time is strongly in favor of the view that uric acid is formed to a large extent both in the liver and spleen.

Have we any hypothesis as to the significance of uric acid which will take the place of the views which modern research has overturned? Considerable evidence has been accumulated which goes to the support of a hypothesis which is essentially modern and is of general biological interest. It is this: that most or all the uric acid which is excreted is derived from the nuclein in the nuclei of cells throughout the body—especially, according to some, the white blood cells—from the breaking down of these nuclei. As this view is one which is gaining ground and has considerable practical importance, we may briefly review the evidence on which it is based. Much of this evidence has been collected by Horbaczewski in a recent publication. In the first place, it was found that if the pulp of spleen be allowed to commence putrefaction by digesting it for eight hours at a temperature of 50°, the extract obtained yielded xanthine or hypoxanthine on simply boiling. If the digestion was carried further with fresh blood, uric acid was obtained in considerable quantities, 2.5 milligrammes of uric acid having been got from one gramme of the splenic pulp. Further, when the nuclein separated from the splenic pulp undergoes digestion with fresh blood, uric acid is formed. These experiments are very properly interpreted as showing that uric acid, with its allied leucomaines, xanthine and hypoxanthine, can be obtained by the destructive transformation of nuclein. The other tissues of the body, excepting tendons, may be caused to yield uric acid by similar processes, but it is from the white cells of the blood that the major part is derived. This is thought to be

shown by the following facts—namely, that conditions which increase the number of white cells in the blood, and consequently stimulate their destruction as well as formation, coincidentally increase the output of uric acid. If this shall be shown to be true, it will certainly be a strong support to the hypothesis. It is claimed by some that this has already been satisfactorily demonstrated, but we may be pardoned for expressing some caution in accepting this statement, as the evidence that exists appears to us in several respects imperfect.

In detail, the following facts are brought forward to support the above view: If rabbits or starving men are fed on nuclein from spleen pulp, the uric acid elimination is greatly increased. This fact appears hardly to possess the value as evidence attributed to it by Horbaczewski, and does not necessarily show that the uric acid is derived from nuclein, since many substances that derange nutrition could doubtless be shown to have a similar effect. It is claimed further that a marked leucocytosis is induced by the use of nuclein taken by the stomach or hypodermically. Again, when you produce a physiological leucocytosis by giving large amounts of nitrogenous food, there is observed an increase in uric acid; and when this physiological leucocytosis is reduced by diminishing the nitrogenous food, there is a corresponding reduction in the excretion of uric acid. Further, it is broadly held, though I fear with insufficient reason, that drugs which increase leucocytosis, coincidentally increase uric-acid excretion, and, conversely, that drugs which diminish the number of white cells in the blood decrease the uric-acid output. Another fact which is advanced with a view to strengthening the hypothesis of a relation between leucocytosis and uric acid is that the excretion of uric acid is habitually greatest at the time when the blood contains the greatest number of leucocytes—that is, from two to three hours after a meal.

In view of the foregoing evidence, I think we may accept the nuclein view of the origin of uric acid as a working hypothesis, though we require a considerable accession of evidence, including the evidence to be obtained from the study of uric acid in birds and snakes (in which uric acid takes the place of urea), to enable us to accept it as a theory. Since, according to this hypothesis, the formation of uric acid has its origin in a chemico-physical process of such universality as the breaking down of the nuclei of cells, it is not difficult to understand the clinical fact that many different conditions are capable of modifying the output of uric acid, the diverse influences becoming operative through the same biological process.

And now, having tried to obtain some insight into the physiological nature of the increased uric-acid output, we may return to the more practical question, What is the actual value, in practice, of our exact knowledge of the uric-acid output of our patients? In the first place, it appears to me that the value of this knowledge is quite different from what it is popularly supposed. It does not give us information about a particular morbid state or diathesis, but rather an indication of the existence of a defect in general nutrition with little or no information as to the nature of this defect, except that it can be induced, and is per-

haps generally induced, by the existence in the blood of a toxic substance formed during the process of digestion.

Now, this information, general as it is, has this value in practice: It gives us an objective basis for deciding whether the line of treatment that is being pursued is or is not effective. Thus, if I find that a patient has a habitual ratio of uric acid to urea of 1 to 25, I know from experience with such cases that he has a disturbance of nutrition from which it is doubtful if he will recover under any treatment, unless the disturbance from which he is suffering be an acute one. If I find the relative ratio to be 1 to 40 or 1 to 35 (on a mixed diet without alcohol), I consider that I have to deal with a distinct but not extreme excess of uric acid which will be lessened and perhaps entirely removed by treatment. Moreover, these results upon the uric-acid output, being very accurate, give us a criterion of judgment which we may employ separately from the symptoms themselves. Again, if a patient with excessive uric acid be put upon treatment calculated to remove the primary trouble and hence reduce the excess, an examination of the urine in two weeks from the beginning of treatment shows conclusively whether this treatment is having the desired effect or not. There is thus little delay in determining whether the treatment is or is not satisfactory. If the urine shows no improvement, it is conclusive evidence that the treatment is not effective and must be changed. There is another prognostic point which I should emphasize here. The fact that the uric acid returns to normal upon a careful diet does not necessarily show that the real trouble is removed or that the patient has recovered, for mere dieting will reduce the output very much. The crucial test is to put the patient on a reasonable mixed diet. If on such a diet the uric acid remains normal, we may assume that the nutritive disorder on which the excess depended has been improved. If, however, the uric acid runs up, we know that the improvement was only apparent and due merely to the continuance of a restricted diet. In conclusion, therefore, we may say that the chief value of determining uric acid in disease is the light it gives us upon prognosis and upon the intelligent conduct of treatment. Its value in diagnosis is much less, and has, I believe, been greatly exaggerated through the idea that uric-acid excess indicates a special condition. I have met with a few cases where uric acid was eliminated in excess without there being symptoms to correspond; but this is certainly rare, and, generally speaking, it is not very difficult to predict from the symptoms in what cases such excess is likely to be found. This fact leads me to think that a good deal too much importance is attached to obtaining an exact uric-acid method for the use of physicians. The number of cases where it is important to have exact knowledge of the uric-acid output does not appear to be very large, and it is hardly worth the effort of the physician to learn an exact method for occasional use. It is better, I think, to send the urine for examination to a reliable commercial chemist, who can do the Ludwig-Salkowski method, and report the results for the interpretation of the physician.

There is one aspect of the elimination of too much uric acid about which we have no knowledge whatever at the

present time, and that is the effect upon the kidney of habitually excreting this excess. There are those who see in the existence of general arterio-sclerosis and chronic diffuse nephritis evidence of the long-continued activity of some toxic substance in the blood, and it has been suggested and even affirmed that uric acid is this substance. It would certainly be interesting to follow the history of persons who habitually excrete too much uric acid, with an eye to renal sequelae; but it must be candidly owned that we have not very much reason to be suspicious of uric acid as a poison. So far as known, people who are very anæmic for a long period or very neurasthenic are not more liable to kidney disease than others, yet we know that they are among the most inveterate uric-acid offenders. While upon the most purely theoretical grounds it does not seem very likely that uric acid has much to do with chronic nephritis, it appears to me that an experimental research might with advantage be undertaken into the possible relation between uric acid and other nitrogenous extractives and the causation of chronic diffuse nephritis and its associations.

When we come to the question of treatment it becomes especially important to bear clearly in mind what I may call the central facts of this paper—that an increase of uric acid does not mean that the patient is suffering from the effects of an excessive quantity of uric acid in the blood; that he is suffering not from disturbance in the later stages of metabolism, but rather from some primary disturbance of which the exact nature is at present unknown in the earlier stages of assimilation and absorption, this disturbance (whether or not the same in all cases) being associated with a great variety of clinical manifestations. As a rule, there are more or less evident errors of digestion, and it is to these that treatment should be especially addressed, though as yet we do not know enough about the variations in the intimate nature of these primary disorders to enable us to individualize closely in our treatment. There are, however, certain facts of a hygienic nature that seem to be generally applicable. Diet stands first in order among such means. Speaking generally, a diet consisting chiefly of animal nitrogenous food is that which best suits most uric-acid offenders. My practice in prescribing a diet is this: An effort is made to "size up" the case as to gravity from previous experience, and a diet is ordered consisting chiefly of milk, red meat, green vegetables, and zwieback, starches and sugar being diminished or cut off according to the indications. It is best at first to make only a moderate reduction, if possible, in the carbohydrates. If at the end of two weeks the uric-acid ratio is found to lie in the neighborhood of 1 to 50, the diet is considered satisfactory, and as much carbohydrate food is added, in the form of rice, hominy, and potatoes, as is consistent with keeping the ratio in this vicinity. It is a very easy matter to simply reduce the uric-acid ratio without any regard for other considerations; you can do it by putting your patient on a milk diet or on a Salisbury diet. But it is usually a mistake to do this without regard for the weight of the patient, which is greatly reduced by such a course and which it becomes exceedingly difficult to restore. I believe that the wisest plan is to keep patients on a mixed diet, in

which all classes of food are represented, and to allow just as much starchy food as is consistent with the avoidance of a uric-acid excess. I believe there are persons who consider the use of red meat injurious in these cases and who prefer to put their patients on a wholly or largely vegetable diet. I have never had the hardihood to order a vegetable diet for purposes of treatment, but I have used such a diet for experimental purposes and found that there was induced not only intestinal disturbances but a higher uric-acid ratio than had been present when a mixed diet with free use of meat was allowed. Another point in regard to diet is the avoidance of an excess of nitrogenous food. Because an animal nitrogenous food is well borne, we are not justified in pushing it to excess, as is often done with a view to "building up" patients. Such an excess may be borne for a time and even appear to do good, but after a while it gives rise to digestive disturbances. A good rule is not to let the amount of urea excreted go beyond, say, one gramme in the twenty-four hours to five pounds' weight of the patient. Thus a person weighing a hundred and fifty pounds would be allowed to excrete in the neighborhood of thirty grammes of urea daily, while a person weighing a hundred pounds would be allowed to run as high as twenty grammes. In this calculation the weight is considered as undergoing little alteration.

The influence of overfatigue is, I believe, very great in bringing about the primary disorder of absorption which leads to uric-acid excess. I have repeatedly had the experience of seeing a uric acid run up in consequence of physical overexertion while a restricted diet was being rigidly adhered to, and can not but feel that the avoidance of such excessive fatigue is one of the most important things in the treatment of these cases. The endurance of these patients is not usually great and each has to learn for himself how much and how little he may safely do. There are many persons whose daily duties, though of a sedentary nature, are largely fatiguing and who become further exhausted by active exercise. It is in cases of this sort that massage has seemed to me to be particularly beneficial in developing the power of resistance to fatigue. In some cases, where exercise was at first impracticable, endurance was so increased after a few weeks of massage that active exercise in walking could be recommenced without fatigue. It has seemed to me that in business men the effects of massage have been distinctly better when the treatment was applied in the morning before business than in the afternoon or evening.

Of treatment by drugs I have little to say, as such treatment appears to me quite secondary in importance to more purely hygienic measures. But while treatment by drugs is of secondary influence it should not be overlooked, for it may be a real help. Of all drugs, arsenic appears to be the most valuable in aiding nutrition to overcome the disturbances which result in uric-acid excess. How it acts is not really clear, but there is no doubt in my mind of its ability to modify nutrition in such a way as to reduce an excessive output of uric acid. The most striking proof of this I have met in cases of chorea, in which the symptoms and the associated large excess in uric acid have been proportionately

controlled by arsenic. Where anæmia exists it is well to give iron and arsenic alternately.

A good deal has been said about the use of drugs that are supposed to "wash the uric acid out of the system." Alkaline waters, lithia water, and of late piperazine water have been recommended for this purpose. When we reflect that uric acid is eliminated with great rapidity as soon as it gets in the blood, and that it is itself no poison, it is difficult to see how we can do good by attempts to eliminate it. The trouble is at the other end of the process, and we should try to check uric-acid formation instead of resorting to the ridiculous attempt to eliminate what does no harm and eliminates itself. The "washing-out" treatment always reminds me of the good woman whose child was run over, but who was greatly consoled by the thought that the brute of a driver had been arrested. The damage is done, and the deed is a thing of the past when the excess of uric acid gets into the blood; there is not even the motive of revenge for trying to eliminate it. Then, again, it is extremely doubtful whether these lauded drugs really do "eliminate." I can not make any positive statement about lithia, but I have experimented with piperazine on normal and abnormal persons and have satisfied myself that it has very little effect on uric-acid excretion. A trivial increase in uric acid was indeed noted, but this was attributable to the slight disorders of digestion induced. In a considerable number of the persons who excrete too much uric acid the urine is scanty and of high specific gravity, and the free use of water helps to restore the proper volume and density of the urine. It seems more than probable that the various mineral waters recommended for the so-called uric-acid diathesis do good as diuretics rather than through any influence upon the formation or elimination of uric acid. I may take this occasion to say that while piperazine has no appreciable effect upon uric-acid formation or elimination, it has seemed in one case of gravel to reduce very much the size of the calculi passed and to diminish the frequency of the attacks.

To conclude, it appears to me that we have been attaching a false significance to uric acid in its relation to disease. The view that uric acid is in any sense a factor in disease, except in a purely mechanical way, is, I believe, destined to die out wholly. We have been attributing to the ash the qualities of the flame.

The Medical Society of New Jersey held its one hundred and twenty-seventh annual meeting in Asbury Park on Tuesday and Wednesday, June 27th and 28th, under the presidency of Dr. George T. Welch, of Passaic. The programme included the following titles: Bovine Tuberculosis—its Transmission to Man, and how to Prevent it, by Dr. J. W. Stickler; the president's annual address, on Therapeutical Superstition; Legislation for the Prevention of Blindness, by Dr. W. B. Johnson; a discussion of the question Is the Philosophical Practice of Medicine not materially Jeopardized by the Modern Methods of Venders of Drugs? (to be opened by Dr. H. L. Coit); An Investigation as to the Use of Magnesium Sulphate hypodermically administered, by Dr. J. Percy Wade, a corresponding delegate from Maryland; The Quarantine of Cholera, by Dr. William Elmer, Jr.; and Some Thoughts on Symptoms and Diagnosis, by Dr. S. E. Armstrong.

The American Electro-therapeutic Association.—The third annual meeting will be held in Chicago on September 12th, 13th, and 14th.

A FURTHER CONTRIBUTION TO THE SUBJECT OF "ANIMAL EXTRACTS."

BY WILLIAM A. HAMMOND, M. D.,
SURGEON GENERAL, U. S. ARMY (RETIRED LIST).

FROM several communications that I have received from physicians who are engaged in extracting cerebrine according to my formula, I learned that they have taken special pains to get rid of the blood contained in the cerebral vessels, especially of that in the sinuses. This is all wrong, as to the intracranial blood is to be attributed, in my opinion, much of the physiological and therapeutical effect of the cerebrine. In the experiments performed several years ago by myself and others relative to the juice of the testicles, it was always found highly desirable not to remove the blood from the organs. In my published communications I have stated that the brain is to be carefully washed in a solution of boric acid, and this procedure is solely for the purpose of getting rid of all extraneous matter that might have come in contact with it after its removal from the skull and before it reached my laboratory. In the absence of any express direction to remove the blood, I took it for granted that such a course would not be adopted. To this fact, and to the additional one of endeavoring to extract in a few days a substance that can not be obtained till after the lapse of several months—six at least, and twelve are better—must be ascribed the failure of a certain drug firm, who, without my knowledge or consent, chose to go into the business of manufacturing cerebrine for sale, to get anything but an entirely inert product—one, in fact, that can be taken in ounce doses without any other effect than would be obtained from a like quantity of a mixture of alcohol, glycerin, and a solution of boric acid.

It is well known that in old specimens of brain and other nervous tissue preserved in alcohol a substance crystallizes out and is deposited upon the surface of the specimens. This has received the name of "spermine." It is only after several months and sometimes years that it makes its appearance. Chemical analyses now being conducted, but not completed, show that spermine is a constituent, though not the only one, of cerebrine and in greater or smaller proportion of the other animal extracts—medulline, testine, ovarine, cardine, and musciline—made by my processes. Undoubtedly its presence is due to the fact that the organs subjected to extraction contain a large amount of nerve tissue. Pure spermine,* with which I have experimented to a large extent, acts in some respects, so far at least as the immediate effects are concerned, like cerebrine. It produces a similar vaso-motor disturbance, but not to as great a degree in corresponding doses. It certainly is not the only active principle of cerebrine or of the other animal extracts. I have not been able to ascertain that spermine produces any decided permanent effect upon the organism, though I have taken it myself in double and treble doses and given it to others to a like extent for several weeks at a time.

Whether, as I stated in my original communication, the essential factor of cerebrine is a substance pre-existing in the brain tissue and extracted by the menstruum or is a secondary product I do not know, nor, so far as its therapeutical properties are concerned, is it a matter of much importance. It is something which I know to be curative of certain morbid cerebral conditions, but whose thorough study is by no means yet accomplished.

The immediate effects of the cerebrine and of most of the other extracts are those indicating vaso-motor disturbance, and are so far similar to those produced by the nitrite of amyl and trinitrin or nitroglycerin. It is of much longer duration, but not so intense as that produced in the average person by a drop of a one-per-cent. solution of nitroglycerin. I have experimented largely upon myself and others with fresh extracts of the brain mixed with solutions of nitroglycerin of various strengths, and I am convinced of the great difference in the action of these mixtures and of cerebrine prepared according to my formula. It has been observed by those who have employed the extract of the thyroid gland in the treatment of myxœdema that even more severe symptoms usually follow the administration. These are in the form of giddiness, headache, faintness, and an apparent tendency to convulsions, and occasionally it has been found necessary to suspend the treatment on this account. Similar effects to those produced by cerebrine are generally observed from the hypodermic injection of the extract of nerve substance prepared by Dr. Gibier. I have never in a single instance—and I have used them many hundreds of times—observed the slightest alarming effect from the use of the animal extracts prepared according to my method.

I have sometimes thought that the combination of glycerin, alcohol, and the highly nitrogenous substances from which these extracts are made might result in the production of a substance analogous to nitroglycerin, and in my first communication on the subject to the *New York Medical Journal* I threw out the suggestion of a secondary product being formed. As I have said, however, the thorough chemical analysis which is now being made will, I hope, dissipate the uncertainty which necessarily exists relative to the exact composition of these extracts.

A word as to one of the critics of my facts and theories. So far as the latter are concerned, I have not the slightest disposition to say a word or commit an act that may impede the fullest expression of opinion. But I think the discussion should be conducted in a decorous manner and that my sincerity of statement should not be impugned. I am therefore surprised to find that Dr. J. S. Leonhardt, who is evidently a physician with a scientific training, should, in the number of this journal for June 10th, adopt a sarcastic tone in regard to the theory and one of incredulity relative to the facts. I think my contributions to this subject have been written with moderation and frankness. I have deprecated extravagance, have held nothing back, and have claimed little, leaving it to the experience of the profession at large to determine the true value of the animal extracts that have formed the subjects of my studies. I am aware of all the difficulties connected with such an

* Manufactured by Messrs. Clinton E. Worden & Co., San Francisco, California.

investigation; but having been one of the first, if not the very first, in this country to enter upon the practical study of experimental physiology and physiological chemistry, having held a professorship of those branches in a prominent medical college, and having continued to work in them to the present time, I consider myself quite as competent to form an opinion on any point connected with those sciences as is Dr. Leonhardt.

In regard to the sphygmograms printed with my paper on Cardine I have only to say that they were made with Marey's sphygmograph, and are engraved from accurate pencil tracings made on the blackened paper of the apparatus. Every one who uses the sphygmograph will know how impossible it would be to send by mail from Washington to New York the original sphygmograms without the great risk of having them obliterated or seriously damaged before they reached the engraver. As regards their value, that is a matter of opinion, and Dr. Leonhardt has a perfect right to estimate them according to his own notions. Their authenticity, however, is quite another matter, and if he questions that, I have only to say that he commits a solecism against good manners for which it would be difficult to find an excuse. It is true, I can not boast of having "several thousand sphygmograms" in my possession, but I have been accustomed to the use of Marey's and Poud's sphygmographs, the one for over thirty and the latter for more than twenty years.

Dr. Leonhardt apparently ignores the fact that the tracings made by one kind of sphygmograph can not be compared with those made by a different instrument. Doubtless "Dudgeon's" sphygmograph—with which, however, I am not acquainted—is entirely competent to be used in the determination of the action of cardine upon the heart, but until Dr. Leonhardt ceases to theorize from the tracings of my sphygmograph to those of the one he is accustomed to he is not in a position to give a logical opinion on the subject.

Let him therefore experiment with "Dudgeon's" sphygmograph as I have done with Marey's, and then, though doubtless the tracings will be different from mine, he will at any rate be competent to judge so far as his own instrument is concerned.

In point of fact, however, he admits that the sphygmograms printed in my paper teach to some extent exactly what I say they do—namely, that cardine increases the frequency and tension of the pulse, but he denies that they show increase of the force. I say they do, inasmuch as the up-stroke of No. 2 and No. 3 is less vertical—more oblique—than that of No. 1.

When Dr. Leonhardt, from the examination of tracings not made with an instrument with which he is working and with whose rate of movement he is unacquainted, undertakes, as he does in his criticism of tracing No. 2, to state the frequency of the pulse, he does that which every experienced sphygmographist knows can not be done with even an approach to accuracy. The length of the line between any two up-strokes depends on the velocity of the paper moved by the clockwork, and is rarely, if ever, the same in any two instruments of different makers or even in

any two of the same kind. It is by this line that the frequency of the pulse is measured. When the paper moves rapidly the line is short, when it moves slowly the line is long. All that Dr. Leonhardt or any one else can say from a comparison of tracing No. 1 with tracing No. 2, so far as frequency is concerned, is that No. 2 indicates a more rapid pulse than does No. 1. The pulse making the tracing No. 1 was 68, of No. 2, 85, and of No. 3, 74, and I am able to state with absolute positiveness that the subject has no cardiac or arterial disease, notwithstanding Dr. Leonhardt's opinion to the contrary.

As to Dr. Leonhardt never having seen any similar sphygmographic tracings, I can well believe his assertion; but if he will kindly take the trouble to consult Marey's *Physiologie médicale de la circulation du sang*, Paris, 1863, he will find not "several thousand" perhaps, but enough, I think, to convince him that there is even yet something for him to learn on the subject.

ON A NEW AND IMPROVED ASPIRATOR AND INJECTOR.

By J. J. HIGGINS, A. M., M. D.

OF the value of aspiration for diagnosis, or treatment by the evacuation of fluids, it is needless to speak. Its introduction into medical practice by Dieulafoy in 1869 was at once followed by universal acceptance. For its performance a suitable apparatus by means of which a vacuum as perfect as possible can be created and maintained is the essential point. Success, either for the verification of diagnosis or in treatment, is dependent upon this exhaust power being present, but in the various apparatuses made, failure in its production is more common than otherwise. The instrument may indeed at the moment of purchase seem satisfactory, but when, after no great lapse of time, it is wanted or again used, it fails, and either we are convinced (ofttimes against our best judgment) that our diagnosis is wrong, or feel that aspiration is not what it is claimed to be. Such very general defect is not, as sometimes told us by the makers, inherent in the instrument, but due entirely to faulty construction. First, in that the valves in the exhaust pump are miserable apologies for the same and out and out worthless. A slip of either rubber or leather tied over an opening constitutes this all-important part. With the very first withdrawal of air through the opening the valve, if of leather, is bulged up to allow of its passage, and now, on suction ensuing, is no longer a flat surface, and leakage results; if of rubber, it is merely a matter of a short time, especially when in contact with oil, before disintegration takes place, and now, with its elasticity gone, it also no longer serves its purpose. For the physician to be compelled every time he wishes to use the instrument to take it apart, and removing the old valves replace them with new ones, is decidedly objectionable. It is a task neither clean nor inviting and that should not be necessary—and in a perfectly made instrument is not. In the new and improved aspirator made by Messrs. George Tiemann & Co. from designs and models furnished them by me, we have a valve that is perfect: as

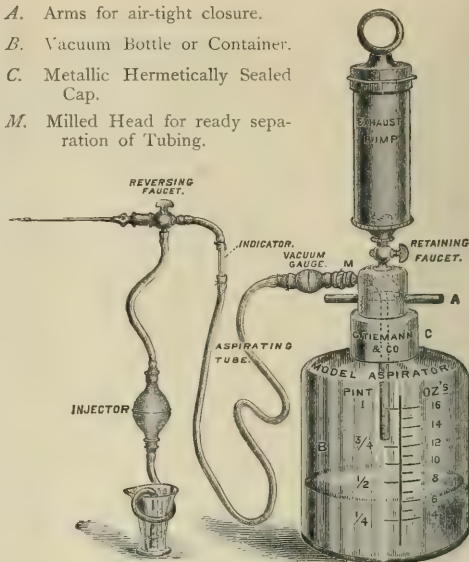
perfect, it matters not how long it may have been since it was used, nor how often, as at first—a valve that is a true valve, that can not get out of order and is always operative. It is patterned after those used in the construction of the costly air pumps employed in the scientific lecture rooms and laboratory, with, however, very material improvement.

Again, the contention that air-tight closure of the exhaust bottle can be effected by a cork, even if of rubber, is sheer nonsense. The usual opening of the bottle is about an inch and a half in diameter, necessitated by the cork having to be large enough for the transmission of two or more tubes. When exhaust is made, no reliance can be placed upon the air-tight closure of such a sized orifice by corking it. In a short time, even if momentarily secure, which is doubtful, air will have permeated into the bottle and suction be gone. In one way only can this for a surety be effected, and that is by the making of such jointure through the medium of a metallic cap hermetically sealed upon the bottle, to which with its intermediate washer the pump is screwed. And here even an opening of such large size would be seriously prejudicial. In the present instrument—and it is the only one so made—such mode of attachment is made use of, and I have so devised and simplified its construction that only an opening of half an inch is required for the passage of the tubes, and a perfectly and absolutely air-tight junction is readily effected. So much so is this the case that the bottle after exhaustion can be put aside for days, and on examination found to be still the same container of nothing that it was at first. The pump is of hard rubber, it being altogether preferable to metal, and of greater capacity than usual. The distal end connecting by screw thread with exhaust bottle is, however, of metal, as being here most suitable. The tube connections are all made by screw and not by permanent affixture, in order that they may be separated at will for cleaning or laying away. The needles are each stamped with figures stating their size, and have a flattened surface upon their haft indicating the cutting side. All faucets are of the kind called stop faucets, and the container or exhaust bottle is graduated by ounces up to one pint. In a word, nothing is wanting that care and oversight, regardless of trouble and expense, could suggest for the construction of a perfect—in fact, model—aspirator. But were this all that was done it would still leave an imperfect instrument, for up to date none have been made that are not so. Each and every one in the market is lacking and deficient, and, as will be seen, most radically so. For by what means or whereby is the certainty of the existence of the necessary vacuum made known, or information given of its dissipation and consequent necessity of its renewal? None whatever. A few pulls of the pump and it has to be taken for granted that the required vacuum exists and continues to be present. But the taking of a thing for granted is a mighty poor basis for any one—much more the physician—to make procedure on. Such incertitude should not exist, for with the absence of a vacuum not only is aspiration, upon which the patient's welfare is dependent, impossible, but, relying upon the presence of that which is not, the practitioner is misled, or made doubtful as to the correctness of his diagnosis.

To secure this very necessary end, an attachment termed

a "vacuum gauge" would be needed, but its bulk and cumbersome nature have been so against it that, however greatly to be deplored, it has universally been omitted. In the aspirator now introduced to the notice of the profession this long-felt want is supplied without additional bulk or complication by the most simple of simple methods. By merely the interposition of a small bulb (see cut) of proper ri-

- A. Arms for air-tight closure.
- B. Vacuum Bottle or Container.
- C. Metallic Hermetically Sealed Cap.
- M. Milled Head for ready separation of Tubing.



gidity on the exhaust tube all is happily effected. If a vacuum is present it will collapse, and more or less so in exact ratio with the amount of exhaust, and the operator sees at a glance the condition of his instrument, not only when commencing, but also during aspiration. As the withdrawal of fluid proceeds and the completeness of the vacuum consequently lessens, the bulb shows it at once, and further exhaustion as indicated can be made. How vital, how all-important it is that such an addendum should always be an integral part of every instrument can not be too highly accentuated, as may be seen from the case of a gentleman to whom one of our most distinguished surgeons of this city was called, and who after careful examination diagnosed the case as one of lumbar abscess and proposed and performed aspiration with, however, a negative result.

Two days afterward I was summoned to the case, and, making the same diagnosis, similarly proposed aspiration. I was then told of the agreement in diagnosis of myself with the previous surgeon and of the operation and its failure to support such opinion. By strenuous insistence, however, I was permitted to operate and did so in exactly the same place—same direction and length of introduction of needle—as far as could be determined, and drew off a quart and a pint of pus.

Now, it will hardly be maintained that in two days this amount of matter could have formed. What, then, was

the reason of the operation in the one case being a failure and in the other a success? Simply, undoubtedly, in that the exhaust and consequent suction power in the instrument used (known as Dieulafoy's) was wanting, whereas in mine it was present, and *not thought but known* to be so. Here a worthless instrument imperiled a patient's life (for entire recovery took place), and, moreover, caused a most experienced surgeon to be at a loss as to the nature of a disease of which he had really made a correct diagnosis. The biblical text "to prove all things" is especially commendable in the use of aspirators. Again, a further improvement in aspirators demands an arrangement whereby, after aspiration, injection into the cavity of an antiseptic or medicated fluid can be made and then reaspirated therefrom. Not only by this means may direct curative application be utilized, but, by repetition, thorough washing out accomplished. In the construction of the present instrument this feature has received careful attention, and injection as well as aspiration can at will be performed *without either change of needle or admission of the least particle of air*.

Although, as previously remarked, of the value of aspiration and the many cases to which it is applicable it is needless to speak, yet the following extract from the *Lancet* (Paris correspondent), April 18, 1891, page 907, may be of interest as showing a still larger field for its employment than that to which originally it was thought adapted:

"The treatment of chronic or cold abscess by the method of aspiration and injection of antiseptic solutions, such as iodoform dissolved in ether, is a favorite plan of some French surgeons and is the one usually adopted for some time past in the wards of M. Verneuil, now senior professor of clinical surgery in the Paris faculty. But it appears to have been reserved in the country to Dr. Piechand, of Bordeaux, to have adapted the method with success to the treatment of acute inflammatory abscesses. Instead of the time-honored free incision of the most dependent part, Dr. Piechand aspirates the abscess, after which he injects a solution of 1 to 1,000 of corrosive sublimate. For the past ten months he has invariably adopted this method in his hospital practice and, he declares, with marked success.

"Even if the skin over the seat of the abscess be thinned and undermined, this is no bar to the procedure, for which he claims as advantages that it is less painful, leads to more rapid healing, and leaves no trace of scar."

In corroboration of the foregoing I would state that quite a number of cases so treated by myself have, by the success attendant, proved it to be of great merit.

NO. 23 BEEKMAN PLACE.

The American Association of Genito-urinary Surgeons has elected officers for the ensuing year as follows: President, Dr. George Chismore, of San Francisco; vice-president, Dr. L. Bolton Bangs, of New York; secretary and treasurer, Dr. John A. Fordyce, of New York; member of the council at large, Dr. Robert W. Taylor, of New York.

Yale University.—The annual address in medicine was delivered on Tuesday, June 27th, by Dr. Henry P. Walcott, of Cambridge, Mass., on The Profession, the Colleges, and the Commonwealth. In the evening a reception was held in Dr. Walcott's honor at the residence of Professor William H. Carmalt.

THE NEW YORK MEDICAL JOURNAL,

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FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, JULY 1, 1893.

THE CITY BOARD OF HEALTH'S AID IN THE DIAGNOSIS OF DIPHTHERIA.

A CIRCULAR recently issued by the Board of Health of the Health Department of the City of New York, published in this issue of the *Journal*, seems worthy of more than ordinary attention, not only for the immense assistance that the work it announces the board's readiness to undertake promises to render to the medical practitioners of the city, but also, and chiefly, as heralding the assumption of what appears to be a new function in boards of health—that of giving to the individual physician the aid of resources ordinarily beyond his reach and far more acceptable to him than an inspector's visit to his patient. To fight against the introduction and spread of infectious diseases, and incidentally to aid in the diagnosis by sending an officer supposed to be possessed of special experimental knowledge of certain forms of disease, have always figured prominently among the duties undertaken by our board and, it is to be presumed, by other boards of health; but this, so far as we know, is the first instance in which a board of health has announced its readiness to facilitate physicians' practical daily work in any other way than by its own appearance on the scene in the shape of an official sent to represent it.

What the New York city board now undertakes to do, as will be seen by the circular, is to make bacteriological examinations in cases of diphtheria and of throat affections so closely counterfeiting that serious disease as to prove puzzling to the physician and embarrassing to the household in which they may appear. All the family physician has to do is to remove from the affected surface, by means of a cotton swab, material which he is to place on a culture medium provided by the board, and send it to any one of a large number of conveniently situated designated depositories, one of which is the board's own laboratory; within twenty-four hours, and earlier, by telephone, if need be, he is informed of the result of the board's bacteriological examination—that is to say, of data on which he may found a positive diagnosis at a comparative early period in the progress of the case. What trouble may thus be averted in cases of real diphtheria by enforcing the patient's seclusion and other necessary precautions, or, in cases that only simulate diphtheria, what needless alarm as to the result to the individual and what uncalled-for abstention of other members of the family from attendance upon him and from free association with others, will at once come to the mind of every family practitioner. In view of the well-known skill of the board's bacteriologists, it is to be taken for granted that the light swabbing specified in the circular is considered sufficient for

the purpose; they are not the men to take upon themselves the responsibility of declaring a diagnosis—for practically that is what their report amounts to—without all the necessary data attainable.

For this undertaking, as well as for many of its recent enterprises, the city board of health seems to us to deserve high commendation. We see no reason to doubt that the plan set forth in its circular will work satisfactorily, and we hope to see it applied in cases of other diseases and its use extended to other communities than our own.

THE MEDICAL CORPS OF THE ARMY.

It is reported that Surgeon-General Sternberg, with the approval of the Secretary of War, has planned courses of special instruction for newly appointed medical officers of the army, to be given in the Army Medical Museum. The instruction is to be to a certain extent what a post-graduation course in medicine would naturally be expected to be—that is, more or less in continuation of the studies pursued by medical students before receiving the degree—but in some respects it will probably be virtually in new studies, for even in the best of our schools some branches of learning that are closely allied to medical knowledge are so lightly touched upon that they are practically a terra incognita to the young medical graduate. But, besides supplementing the youthful assistant surgeon's strictly professional education, the courses contemplated will include one upon the business affairs of a military medical officer's daily life, such as his relations to the soldiers and their families and to his fellow officers, both of his own corps and of the army in general, the customs and needs of the service in such matters as making out reports, and numerous other details the knowledge of which there has heretofore been no means for the young medical officer to acquire save by chance observation or by asking questions.

It is wonderful that in the absence of such a school the medical officers of our army so readily got the run of their duties and prerogatives during our last war, but much time could have been saved if it had been in existence. When the war was over and the army was reduced to the dimensions of a mere nucleus, it would probably have been difficult to find suitable quarters that the Government would have consented to put to such a purpose as that of giving special training to so small a body of men as the medical corps of the army, but now that we have the Army Medical Museum that obstacle seems to be done away with. There can, we think, be no reasonable doubt that the Army Medical School will prove to be a powerful factor in increasing the efficiency of the army medical service. Its design is exceedingly creditable to the new surgeon general, and he is to be credited also, we learn, with having resolved upon a most desirable change in the system of distributing his officers to stations; instead of continuing to send the young men to the plains to work their way up through tedious years of humdrum service to stations where there is something going on that is of interest to them, Surgeon-General Sternberg will

endeavor to give each of them a considerable period of service at a post where attendance at the great civil hospitals, the college laboratories, the medical libraries, and the meetings of medical societies may aid him in fitting himself for the second examination. While the opportunities of the older officers should not be curtailed, certainly those of the younger ones should be enlarged, and we know of no better way of accomplishing that end than the surgeon general's plan of stationing junior medical officers.

MINOR PARAGRAPHS.

MODIFICATIONS IN LEUCOCYTES IN INFECTION AND IMMUNITY.

In the *Annales de l'Institut Pasteur* for February 25th, Mlle. C. Everard, M. J. Demoor, and M. J. Massart publish an interesting study of the quantitative and qualitative variations in leucocytes during infection and immunity. Their experiments show that an injection of cultures containing living or dead microbes produces, in the first place, a diminution in the number of leucocytes in the circulation, especially of leucocytes having a compact polymorphous nucleus and granular protoplasm. When the animal resists the infection the period of hypoleucocytosis is followed by a brief time during which the variety of leucocytes above mentioned is very abundant; subsequently the blood resumes its normal character. This typical period of hyperleucocytosis is sometimes completely wanting in animals that succumb to infection, when death occurs rapidly, and sometimes it is replaced by a series of oscillations in the number of leucocytes when the infectious disease is prolonged for some time. The blood of an animal that has received a protective inoculation before the injection of the cultures of bacteria is richer in leucocytes than that of an ordinary animal. These observers believe that the various forms of leucocytes are stages in the evolution of the same cell, the young leucocyte having a single compact nucleus and a small quantity of protoplasm, and afterward becoming vesiculated and having the protoplasm increased; and that eventually the adult leucocyte, capable of exercising the function of a phagocyte, presents a compact polymorphous nucleus and has its protoplasm covered with granulations.

THE GERM THEORY AT THE BEGINNING OF THE EIGHTEENTH CENTURY.

ACCORDING to the *British Medical Journal* for June 10th, Dr. Reid read, at a recent meeting of the Halifax branch of the British Medical Association, the following extract from *A Treatise on Consumption of the Lungs*, by Edward Barry, M. D., London, MDCCXXVII: "In this treatise I have proposed rather to lay down a right account of this Distemper than to examine the errors of others; but, however, I cannot well avoid mentioning the author of a late hypothesis—Martin on *Consumption*, pages 50-51, which some may be more inclined to believe, since no less than *ocular demonstration* is offered to confirm the truth of it. This person takes notice that *ulcers* in the *lungs*, when narrowly viewed with microscopes, are covered with several *insects*, and from thence concludes that they take their first origin from such *animalcules*, which, being inspired with the air, fix their situation on the *lungs*, and erode and ulcerate the *vessels* . . . these *animalcules* have been by others supposed the causes of several distempers, and particularly such as are *contagious*. . . For it is certain that there is almost an infinite number and va-

riety of such *animalcules* perpetually floating in the air, whose chief business consists in searching out a place where they may find nourishment and a proper situation for themselves and their young." The Italics are in the original.

THE TREATMENT OF CHOLERA WITH ATROPINE.

At a recent meeting of the Royal Medical and Chirurgical Society of London Dr. Lauder Brunton stated that in 1873 he had called attention to the close resemblance between the symptoms of cholera and those of muscarine poisoning; and, as the latter could be relieved by the subcutaneous injection of atropine, had suggested that good results might be hoped for in cholera from administering atropine. He had not had an opportunity of acting on his theory until last year, when the atropine had proved very useful in treating two cases of cholera. It seems singular that one so well informed as Dr. Brunton should apparently be unaware that this suggestion had been made and successfully carried out years before he made it. We need not refer to the facts that Viardin in 1882 (*Gazette médicale de Paris*, 1882, p. 810) and Chalvet in 1859 (*Gazette des hôpitaux*, 1859, p. 473) successfully employed belladonna in the treatment of cholera. But in 1866 the late Dr. John T. Hodgen, of St. Louis, published an article (*St. Louis Medical and Surgical Journal*, 1866, p. 497) advocating the administration of atropine to relieve the collapse of cholera, and for years afterward in his lectures he referred to the usefulness of this drug. In the cholera epidemic of 1873 a number of American physicians employed atropine in treating cholera.

PROFESSORS' SALARIES IN SCOTCH UNIVERSITIES.

The *British Medical Journal* for June 17th states that in the University of Edinburgh the salary of the professor of anatomy is sixteen hundred pounds, and that those of the professors of physiology, chemistry, and pathology are fourteen hundred pounds each, of those of natural history, botany, and materia medica, a thousand pounds each, of those of medicine and of surgery nine hundred pounds each, and of those of midwifery, clinical surgery, and forensic medicine, eight hundred pounds each. The professors of anatomy, physiology, chemistry, pathology, natural history, and botany are not to engage in private practice. Additional fees allowed all these professors further increase these incomes. At the smaller University of Aberdeen the professor of anatomy receives eleven hundred pounds; the professors of chemistry, of physiology, and of pathology, nine hundred pounds each; those of natural history, of materia medica, and of botany, seven hundred pounds each; and those of medicine, surgery, forensic medicine, and midwifery, six hundred pounds each. These emoluments surpass those of most American medical colleges, if the purchasing power of the money is considered.

THE SUPPRESSION OF INFORMATION ABOUT CHOLERA IN FRANCE.

SERGEON FAIRFAX IRWIN, of the United States Marine Hospital Service, reported in the *Abstract of Sanitary Reports* for June 16th that the authorities of Marseilles had not only refused him the opportunity of inspecting the records, but suppressed everything relating to cholera, and that the newspapers were not permitted to publish the causes of deaths. The *Medical Week* for June 16th independently corroborates this report, stating that both the local and the central authorities seem once more to be endeavoring to conceal the truth, or at any rate to

hide it under all sorts of designations. A rapidly fatal diarrhoeal disease has appeared in a number of the maritime departments of France, but not a single systematic bacteriological examination has been made. This course of concealment and perversion is in direct conflict with the agreement made at the recent sanitary conference at Dresden, and, though the agreement has not yet been ratified, it has been accepted by the various signatory powers, one of which was France. Perhaps if our health authorities declared France infected with cholera, the local authorities would realize their duty.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

We are informed that the statement contained in our report of the proceedings of the recent meeting of the American Medical Association to the effect that Dr. Culbertson had been re-elected editor of the association's *Journal* was incorrect, and that Dr. John B. Hamilton, of the Marine-Hospital Service, was chosen. Dr. Hamilton's previous editorial connections and his well-known literary ability are full of promise for the future character of the *Journal*. The retiring editor, Dr. Culbertson, has done much to improve the publication, and Dr. Hamilton may be trusted to carry the process of improvement farther.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending June 27, 1893:

DISEASES.	Week ending June 20.		Week ending June 27.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	3	4	6	2
Typhoid fever	12	4	19	6
Scarlet fever	139	14	66	12
Cerebro-spinal meningitis	10	7	4	2
Measles	182	9	214	15
Diphtheria	127	41	101	37
Small-pox	8	2	8	1

The Pan-American Medical Congress.—Section in Gynecology and Abdominal Surgery.—We have been asked to publish the following circular:

"All members of the medical profession are cordially invited to attend the meetings of this section to be held in Washington, September 5th, 6th, 7th, and 8th.

"The sessions promise to be exceptionally interesting, many valuable papers having been contributed. Those who may wish to read papers before this section and who have not yet sent in their titles and skeleton abstracts are requested to do so at once.

"Papers have already been contributed by the following distinguished gentlemen from the United States and Canada: Drs. T. Johnson Alloway, Montreal, Can.; A. W. Abbott, Minneapolis, Minn.; J. M. Baldy, Philadelphia, Pa.; H. J. Boldt, New York city; Augustus P. Clarke, Cambridge, Mass.; Ernest W. Cushing, Boston, Mass.; Andrew F. Currier, New York city; L. H. Dunning, Indianapolis, Ind.; George R. Deane, Spartansburg, S. C.; W. E. B. Davis, Birmingham, Ala.; Joseph Eastman, Indianapolis, Ind.; George M. Edebohl, New York city; De Saussure Ford, Augusta, Ga.; William Gardner, Montreal, Can.; T. H. Hawkins, Denver, Col.; John R. Haynes, Los Angeles, Cal.; Edward W. Jenks, Detroit, Mich.; Joseph Taber Johnson, Washington, D. C.; Howard A. Kelly, Baltimore, Md.; Florian Krug, New York city; G. Betton Massey, Philadelphia, Pa.; Lewis S. McMurtry, Louisville, Ky.; R. B. Maury, Memphis, Tenn.; William F. Myers, Fort Wayne, Ind.; E. E. Montgomery, Philadelphia, Pa.; Robert T. Morris, New York city; Charles P. Noble, Philadelphia, Pa.; Joseph Price, Philadelphia, Pa.; George H. Rohé, Baltimore, Md.; James F. W.

Ross, Toronto, Can.; Charles A. L. Reed, Cincinnati, O.; I. S. Stone, Washington, D. C.; R. Stansbury Sutton, Pittsburgh, Pa.; T. Algernon Temple, Toronto, Can.; A. Vander Veer, Albany, N. Y.; W. B. Ward, Topeka, Kan."

[Signed.]

W. W. POTTER, *executive president.*

BROOKS H. WELLS,

71 West Forty-fifth Street, N. Y. city,
English-speaking secretary.

The late Dr. James McCann, of Pittsburgh, Pa.—A committee of the faculty of the Western Pennsylvania Medical College has prepared the following memorial:

"James McCann, M. D., LL. D., was born fifty-seven years ago in Penn township, Allegheny County, Pa. His father served under Anthony Wayne in the war for American independence. In early boyhood he passed his summers working upon his father's farm, and the winter months as a pupil of John G. Beatty, who taught him, in addition to the public-school curriculum of that time, Latin and the higher mathematics. At about thirteen years of age his father died, when he began teaching school, and became a leading member of a local debating society. Even at this early date he was a ready, fluent, and earnest talker. Tiring of the monotony of country life, and, like the majority of young men of his age, not knowing exactly what to do with himself, he decided upon a mercantile career, and at the age of eighteen came to Pittsburgh, where, after graduating at Duff's College, he spent several years as bookkeeper in a business house. This sedentary life became irksome to him, his health was not good, and acting upon the advice of his physician, who regarded him as a young man of promising talents, he finally decided to study medicine. With this object in view, he in 1858 entered the office of Dr. Thomas and Dr. John Dickson, Sr.

"He graduated from the Medical Department of the University of Pennsylvania in 1863 and immediately entered the medical service of the army as assistant surgeon of the Fifth Pennsylvania Volunteers. He continued in this service until the close of the war, when he returned to Pittsburgh and began the practice of medicine with Dr. W. C. Reiter. Two years later he received the appointment of surgeon to the Marine Hospital and the connection with Dr. Reiter was soon afterward dissolved.

"He was next appointed one of the surgeons of the Western Pennsylvania Hospital, which position he held until a few months ago, when he resigned because of ill health, and accepted the appointment of consulting surgeon. For twenty years he has been one of the surgeons of the Pennsylvania, the Allegheny Valley, and other railroads entering this city.

"He was an active and influential member of the Pittsburgh Free Dispensary from its inception, of the board of health for many years, of the Allegheny County Medical Society, of the State Medical Society, of the American Medical Association, of the American Surgical Association, and of the American Association of Obstetricians and Gynecologists, but owing to ill health he was never able to attend a session of the latter.

"In spite of the busy life he led, his ardent love and natural aptitude for teaching led him—in connection with his confrères of the Mott Medical Club—to undertake the arduous task of organizing the first medical college in Western Pennsylvania. Into this work he threw all his enthusiasm, and devoted to it all his energy and influence. Caring but little for pecuniary reward, it was with him a labor of love. In September, 1886, after years of weary and distasteful work, the culminating point of his ambition was attained by his election to the chair of professor of the principles and practice of surgery. This position, notwithstanding his failing health and in defiance of bodily suffering, he filled until a few months prior to his death. At last, his physical endurance being exhausted, his grateful and sorrowing colleagues unanimously nominated him for appointment as emeritus professor, a last tribute to his eminent worth and ability; but before this action could be confirmed by the board of trustees of the university Death had claimed him as his own.

"He died a martyr to his profession—a sacrifice upon the altar of charity. His love for it and devotion to it was the direct cause of his death. He performed an enormous amount of work, and it was in the

performance of a surgical operation, a work of charity in the Western Pennsylvania Hospital, that he received the fatal shaft from the quiver of the fell destroyer. Had he, like many others, turned aside from charity work and devoted himself strictly to his lucrative clientèle, he would be living to-day.

"He never ceased to be a student. He was too broad-minded to make a successful specialist. His mental attainments were too great, his studies and reading too comprehensive, his ambition too high for any single department of his profession to permit free scope to his talents. His mind was alert to grasp and tenacious to retain knowledge, which enabled him to easily keep pace with progress and improvement, however rapid, in every department of medical science.

"He stood in the front rank of the leaders of the profession. His *savoir faire*, his strong personal individuality, his impulsive and generous nature, won him a host of friends in and out of the profession.

"His reputation and practice were not limited to his own city, county, or State, but were national. His life was one of unceasing toil. There are but few surgical operations that he had not performed. His profound knowledge, rather than his personal magnetism, made him popular with all the members of the profession with whom he came in contact, making him eagerly sought as a consultant, and he never betrayed this trust.

"He followed, as strictly as the present state of society will perhaps admit, the axiom, 'A physician's first duty is to his patient, his second only to himself.'

"He was in the active practice of his profession from 1863 to 1893—a period of but thirty years, yet in those thirty years he accomplished, perhaps, a task as great, and fulfilled a destiny as rounded and complete as the average practitioner of fifty years' standing. A man's life is measured by his works. Judged from this standpoint, although he was but fifty-seven years of age, his death was not premature.

"He had faults, but no vices, and his virtues were too many to dwell upon at greater length. By his death his wife loses a loving husband, his children an affectionate father, his colleagues a genial companion and true friend, and his profession a devoted follower. *Requiescat in pace.*"

[Signed.]

{ W. SNIVELY,
J. B. MURDOCK,
C. B. KING.

The Richmond Academy of Medicine and Surgery.—The special order for the last meeting, on Tuesday evening, June 27th, was the reading of a paper on *Placenta Prævia* by Dr. Mark W. Peyser.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 18 to June 24, 1893:*

An army retiring board having found SKINNER, JOHN O., Major and Surgeon, incapacitated for active service, the extension of leave of absence on surgeon's certificate of disability is further extended until further orders.

BROOKE, BENJAMIN, First Lieutenant and Assistant Surgeon, is granted leave of absence for two months, to take effect on or about July 15, 1893.

WOODRUFF, CHARLES E., Captain and Assistant Surgeon, is granted leave of absence for one month and twelve days from August 1, 1893.

HALLUCK, HARRY M., First Lieutenant and Assistant Surgeon, will, on July 6, 1893, proceed to Griffin, Ga., and report to Captain George G. Greenough, Fourth Artillery, for duty in connection with the encampment of State troops at that place.

GLENNAN, J. D., First Lieutenant and Assistant Surgeon, now at Fort McIntosh, Texas, will report to the commanding officer, Third Cavalry, to accompany Troop I of the regiment to Fort Sill, Oklahoma Territory.

CHAPIN, A. R., Captain and Assistant Surgeon, is granted leave of absence for one month.

APPEL, DANIEL M., Captain and Assistant Surgeon, is relieved from further duty as attending surgeon for the officers and enlisted men on duty at the World's Columbian Exposition, and will report to the commanding general, Department of the Missouri, Chicago, Ill.,

for duty as Attending Surgeon and Examiner of Recruits in that city.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending June 24, 1893:*

GUTIÉRAS, D. M., Passed Assistant Surgeon. Detached from the Naval Hospital, Philadelphia, and ordered to the Naval Laboratory, Brooklyn, N. Y.

KENNEDY, R. M., Assistant Surgeon. Detached from the Coast-Survey Steamer Bache and ordered to examination for promotion.

BARBER, GEORGE H., Passed Assistant Surgeon. Detached from the U. S. Steamer Miantonomoh and ordered to the Coast Survey.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the five weeks ending June 10, 1893:*

BALLHACHE, P. H., Surgeon. Granted leave of absence for four days. May 22, 1893.

PURVIANCE, GEORGE, Surgeon. Detailed as chairman of the Board of Examiners. May 8, 1893.

HUTTON, W. H. H., Surgeon. Granted leave of absence for ten days. June 1, 1893.

HAMILTON, J. B., Surgeon. Granted leave of absence for four days. June 1, 1893. Granted leave of absence for seven days. June 7, 1893.

GASSAWAY, J. M., Surgeon. Detailed as member of the Board of Examiners. May 8, 1893.

STONER, G. W., Surgeon. To represent the service at the meeting of the American Medical Association. June 2, 1893.

IRWIN, FAIRFAX, Surgeon. To proceed to Marseilles, France, for duty. May 16, 1893.

CARTER, H. R., Surgeon. Detailed as recorder of the Board of Examiners. May 8, 1893. To report in Washington, D. C., for special temporary duty. May 20, 1893. To proceed to Delaware Breakwater Quarantine for temporary duty. May 31, 1893. To proceed to Baltimore, Md., for temporary duty. June 2, 1893.

CARRINGTON, P. M., Passed Assistant Surgeon. To proceed to Bremen, Germany, for duty in the office of the United States Consul. May 16, 1893.

KINTOUN, J. J., Passed Assistant Surgeon. To proceed to Chicago, Ill., for special duty. May 8, 1893.

GOODWIN, H. T., Passed Assistant Surgeon. To proceed to Detroit, Mich., for temporary duty. May 27, 1893.

STONER, J. B., Passed Assistant Surgeon. Granted leave of absence for twenty days. June 5, 1893.

GEDDINGS, H. D., Passed Assistant Surgeon. To proceed to Reedy Island, Del., for special temporary duty. June 7, 1893.

CONDUCT, A. W., Assistant Surgeon. Granted leave of absence for thirty days. June 5, 1893.

NORMAN, SEATON, Assistant Surgeon. Granted leave of absence for six days. May 12, 1893.

less reaction and traumatism—not that the traumatism of peritomy is at all serious or the healing imperfect or the operation itself objectionable, only the cautery, it seems to me, is as effective, rather more simple, and as rapid in its results. Of course the indication is the same for each method, and it may be simply a matter of choice as to which should be used, but the results are, in many instances, remarkable.

In cases of ulcerative keratitis I first make a careful inspection of the cornea and cauterize, at the sclero-corneal margin, any vessel or vessels feeding the ulcer, and rarely see much resulting pain or reaction. Then, with the subsequent aid of the usual remedies suitable for these conditions, I find far more satisfactory and speedy results.

I do not always use the cautery in cases of extensive pannus, nor do I always venture to cauterize all the blood-vessels at once, but I am of the opinion that this method (or peritomy) will be useful in the large majority of cases of ulcerative keratitis. Either the galvano-cautery or the platinum probe heated in the flame of an alcohol lamp may be used.

HENRY W. RING, M. D.

Proceedings of Societies.

THE AMERICAN PEDIATRIC SOCIETY.

Fifth Annual Meeting, held at West Point, N. Y., on May 24, 25, and 26, 1893.

The President, Dr. A. D. BLACKADER, of Montreal, in the Chair.

The President's Address.—After a retrospective view of the scientific labors of the society during the past five years, in which he showed the breadth of pædiatrics, the president spoke more particularly of the importance of a proper knowledge and treatment of the constitutional conditions occurring in children, that vicious tendencies might be checked or corrected and vigorous and healthy adults be reared.

This Year's Failures in Diphtheria.—Dr. M. P. HATFIELD, of Chicago, read a paper thus entitled. He reported six cases of diphtheria, all ending in death from various causes. In the first case he thought the result might possibly have been different had he insisted, on the evening when he first saw the child, on making a thorough examination. As it was, in order to avoid disturbing the child late at night, he had lost precious time which might have been used in combating the disease. In another case he blamed himself for not having paid more attention to the backache, anorexia, and vomiting which indicated the onset of a diphtheritic nephritis, for by using prompt and energetic treatment he had saved the patient's sister. In still another case death had occurred very suddenly from paralysis of the heart while the patient was sitting up in bed on the sixth day of the disease. The writer took a gloomy view of the operation of intubation, as all the patients whom he had intubated, or had others intubate for him, had died. He thought two of the six might have been saved had tracheotomy been performed.

Dr. W. P. NORTHRUP, Dr. W. D. BOOKER, Dr. J. LEWIS SMITH, and Dr. A. CAILLÉ spoke of the advantages of intubation, even in the hands of the general practitioner. Dr. Northrup argued from his pathological studies of cases terminating fatally after intubation, and of others of death from laryngeal diphtheria, that it was rare that tracheotomy offered any advantages over intubation, and that when the membrane once developed below the cricoid cartilage, it always spread down

Letters to the Editor.

REGARDING PERITOMY.

NEW HAVEN, CONN., June 17, 1893.

To the Editor of the New York Medical Journal:

SIR: The favorable results of any treatment for the relief or cure of ulcerative keratitis should be welcomed by the profession, and the article in the *Journal* of the 17th inst. by Dr. John DUBB, of Richmond, Va., on the value of peritomy was of particular interest to me, as my experience and convictions coincide very closely with his; but where he practices peritomy I make use of the cautery with as good results and, perhaps,

into the fine bronchial tubes. Why the cricoid cartilage should be the dividing line he could not say, but such had been his experience.

Dr. J. E. WINTERS thought that very early intubation or tracheotomy would often prevent this extension of the membrane downward.

Dr. A. JACOB, as a result of extensive experience in tracheotomy, took exception to the statement that the cricoid cartilage was to be considered as any such dividing line in the extension of this process. He thought the author of the paper was right in reproaching himself for not having insisted upon the family carrying out the nasal treatment more efficiently, not that it might have altered the result in this particular case, but on general principles, for one had no right to consider the feelings of the relatives when by so doing one jeopardized the patient's life. As a result of the systematic use of nasal irrigation, it could no longer be held that a person who had nasal diphtheria was necessarily doomed. Again, the case of heart failure carried with it an important lesson, and that was that we should not wait until symptoms of collapse set in, but, knowing that diphtheria was apt to terminate in fatal syncope, we should, from the very beginning, use alcohol and cardiac stimulants freely.

Dr. J. LEWIS SMITH spoke of the much better results which Dr. O'Dwyer and others were getting with intubation since they had begun to employ calomel sublimations in conjunction with it. From ten to thirty grains of calomel were heated on a tin plate over a lamp, and the child, placed under a tent or sheet, was made to inhale the fumes from the burning calomel for not more than fifteen minutes at a time. These sublimations should be repeated every two or three hours. Any one who was skeptical about the penetrating power of this remedy when so administered need only place himself under the tent to be convinced of his error, for even a slight exposure to the fumes often left an irritative cough that lasted for hours, and longer exposure had been known more than once to give rise to salivation. A resort to this treatment, even in cases of laryngeal diphtheria in which it seemed almost impossible that anything but an operation was likely to be of benefit, would in a certain proportion of cases save life and render an operation unnecessary.

Dr. T. M. ROTCH, of Boston, said that anatomical as well as clinical proof of the efficiency of nasal irrigations in diphtheria was not wanting. Some years ago, at his suggestion, Professor Dwight, of Boston, had undertaken an anatomical study of the nose and throat which had resulted in demonstrating that the tonsils were more excretory than secretory in their function, while the function of the naso-pharynx was chiefly secretory.

The Value of Peroxide of Hydrogen in Diphtheria was the title of a paper by Dr. J. LEWIS SMITH, of New York. Finding, as others had done, that the ordinary preparations of the peroxide of hydrogen when diluted with two volumes of water sometimes increased the irritation of the affected parts, and even produced a fibrinous exudation as a result of the irritation produced by their acid impurities, he had found that Marchand's solution required five grains of sodium bicarbonate, the Oakland Company's peroxide three grains, and Squibb's preparation two grains and a half to neutralize the free acid. As Dr. Squibb had informed him that a neutral or alkaline solution of peroxide of hydrogen would decompose at ordinary temperatures at the rate of two or three volumes a day, the sodium bicarbonate must be prescribed separately from the peroxide, and only added each time before using. He also called attention to the fact that Dr. Squibb prepared for the use of the medical profession a small set of reagents with which the physician could make for himself a fresh solution of peroxide of hydrogen.

A Case of Laryngeal Diphtheria was reported by Dr. W. D. BOOKER, of Baltimore. A little girl who had been suffering during the past winter a good deal with bronchitis was suddenly attacked, on April 6th, with an alarming laryngeal stenosis associated with great prostration. Intubation was performed, but she grew worse steadily, was seized with bronchopneumonia, and died on April 10th. During this time no membrane could be observed in the throat. At the autopsy, which was made immediately after death, the tonsils, pharynx, uvula, and soft palate were absolutely free from exudation, yet, beginning at the upper margin of the posterior surface of the epiglottis and involving the mucous membrane of the larynx, trachea, and primary bronchi, there was a grayish-white false membrane, in some places a millimetre in thickness and not easily separated from the underlying mucous membrane. In its clinical features this case would be considered a typical one of true croup, but a careful bacteriological examination showed it to be diphtheritic. The writer stated that for the purpose of making cultures he had gouged out large portions of various organs, for the diphtheritic bacilli gathered in such small numbers in the organs that he had been unable to find any of them in sections from these organs. It was very remarkable that in this case the bacilli passed over the pharynx; he could only explain it on the supposition that the previous bronchitis had rendered the parts below the pharynx alone vulnerable. It was evident from the bacteriological examinations that the diphtheritic bacilli were not confined to the local lesion, but it was still questionable whether these bacilli gathered in the organs in large enough numbers to be of practical importance.

The last two papers were discussed together.

Dr. AUGUST SEIBERT, of New York, detailed some experiments which he had made on the comparative solvent action of peroxide of hydrogen, aqua chlori, and Labarraque's solution on diphtheritic membrane. He had taken fresh pieces of membrane of the same size and immersed them for ten minutes in the same quantity of each test solution. Bacilli and streptococci were obtained from the piece that had been in the peroxide of hydrogen, the cultures were negative with the aqua chlori, while the membrane placed in Labarraque's solution had been completely dissolved at the end of ten minutes. Dr. Booker's case showed that the bacilli entered the system below the membrane, and emphasized the importance of the treatment which he personally advocated—viz., that this was the locality at which they should be attacked with remedies.

Dr. J. H. FRITZTIGHT said he had overcome the irritating properties of peroxide of hydrogen by adding to it lime water, which not only counteracted the acidity, but exerted a solvent action on the membrane. It should be prescribed in a separate bottle from that containing the peroxide. An ounce should be added to three ounces of Squibb's preparation.

Dr. A. CAILLÉ, of New York, drew one practical lesson from Dr. Booker's case, and that was that anemic or rachitic children who had been suffering from bronchitis should be removed from a locality in which it was known that diphtheria was prevailing, for we could not prevent diphtheritic infection of the respiratory passages as we could that of the nasal cavities.

Dr. HENRY KOPLIK, of New York, said that a mixture of bouillon and blood-serum furnished the most sensitive culture medium for diphtheritic bacilli.

Brief Notes on Antipyretic Drugs in the Febrile Affections of Children.—Dr. J. P. CROZER GRIFFITH, of Philadelphia, read a paper thus entitled. Cases were cited showing the beneficial action of antipyretic drugs when administered not because of the degree of temperature but because of the existence of nervous symptoms dependent upon the fever.

Dr. CHRISTOPHER, of Chicago, shared the position taken by the author, and added a caution against using such remedies continuously.

Questions of Nomenclature.—Dr. ROTCH presented the report of the committee on the revision of the nomenclature of gastro-intestinal diseases. It was especially urged that the term "dysentery" should be discarded. The report favored a classification according to a pathological basis.

Dr. F. FORCHHEIMER, of Cincinnati, presented the report of the committee on the revision of the nomenclature of diseases of the mouth.

After a long discussion on these reports, it was thought best, in view of the importance and complexity of the subjects, that no action be taken on the reports until the next annual meeting.

Proctitis in Early Infancy.—Dr. LOUIS STARR, of Philadelphia, read a paper on this subject. These cases were characterized by small, frequent movements of the bowels with straining, greenish or yellow movements with some mucus, and moderate emaciation. On everting the mucous membrane of the rectum, it would be found to be intensely red and sometimes superficially ulcerated. There might also be a catarrhal inflammation of the mucous membrane of the mouth, with a peculiar T-shaped ulceration at the junction of the hard and soft palate, the vertical stem of the T extending down to the uvula. The etiology was obscure; in very young infants the disease might be due to the meconium. The treatment consisted in the use of cleansing injections of salt and water, two to eight ounces being used each time and given with a fountain syringe which was only slightly raised above the level of the baby's body. These should be followed by enemata of olive oil. In obstinate cases it was well to use injections of nitrate of silver—one to two grains to two ounces of water—following these with an enema of salt and water. After using from one to three such injections, at intervals of three or four days, the simpler treatment already outlined would usually suffice to complete the cure. Olive oil should be used instead of water for cleansing the buttocks when there was excoriation. Most of the cases he had seen had occurred among well-to-do people and with children fed at the breast, and the treatment for the diarrhea of indigestion had been of no avail.

Dr. FRUHNIGHT recalled a child seen by him during the past year with similar but severer symptoms. The use of copious enemata of boric-acid solution and, internally, of iodide of iron had brought about a cure in about two weeks.

Dr. JACOBI said that proctitis was ascending or descending, or arose *in loco*. He thought the nitrate-of-silver injections, even when carefully given by the physician, were apt to increase the tenesmus, and he preferred starch water or bismuth and water.

Acute Scleroderma.—Dr. WILLIAM OSLER, of Baltimore, read a paper in which he reviewed the literature, and reported a case occurring in a child of fourteen months, who also had an acute croupous pneumonia. The induration first appeared on the eighth day of the pneumonia, and the hardness spread within twenty-four hours over the entire body, making it feel like a block of wood. At this time the temperature in the rectum was 99° F. Death occurred on the next day. The body was as hard and stiff as if frozen, and the only parts not affected were the genitals and scalp. Microscopic examination showed the structure of the skin to be more like that of those portions of the body which were naturally but slightly movable.

Dr. NORTHRUP referred to a case of sclerema neonatorum which he had presented to the society at its first meeting. In his case the temperature had been decidedly subnormal, and the child had been known in the institution to which it belonged as "the stone baby." After examining critically with

the microscope many sections from this case and comparing them with sections taken from healthy children of the same age, he had found that there was no characteristic morphological appearance.

Dr. JACOBI said the fact that in the case reported in the paper the patient did not have a subnormal temperature, as was usual in these cases, could be readily explained by the simultaneous occurrence of pneumonia. The scleroderma of adults and young children he had always looked upon as a neurosis. The clinical phenomena of scleroderma were well explained by the theory that there was an effusion of blood containing more than the normal quantity of coagulable material.

Dr. KOPLIK said that in the cases which he had seen among the new-born at Prague the induration had developed first on the inner side of the thighs, then on the buttocks and cheeks.

Whooping-cough was the subject of a special discussion.

Dr. GRIFFITH, of Philadelphia, referred briefly to many of the recognized methods of local treatment. Cocaine in the form of a spray was sometimes useful, but, as Dr. Holt had pointed out, it sometimes produced dangerous symptoms. From a review of the literature of the subject, the speaker had concluded that pertussis was due to an infectious germ circulating in the blood, and not to a local process.

Dr. FORCHHEIMER dealt with the constitutional treatment, and spoke of the desirability of employing prophylaxis, but of the almost insuperable difficulties in the way of carrying out this treatment. For example, in the first stage it was impossible to make the diagnosis, yet he thought that at this time the disease was just as contagious as in the spasmodic stage. Then, again, in the third stage it was well-nigh impossible to keep children isolated. The poor considered the schools a place of safe-keeping for their children, and felt that it was quite a hardship if they were prevented from attending; besides, even if the children were kept away from school, after school hours they would be found to come together and play on the street. Belladonna or atropine and quinine were most generally accepted as efficient remedies in pertussis, but there was much conflicting testimony in regard to their efficacy. Idiosyncrasy seemed to exert a powerful influence, for different members of the same family would be found to behave very differently with the same remedy. The difficulty in arriving at definite conclusions regarding the action of such remedies was that no one observer had a sufficient number of patients under proper control to make his observations and deductions thoroughly reliable.

Dr. OSLER said he had not found that any remedy, except perhaps quinine, exerted any marked influence on pertussis, and he should not expect a different result, for he regarded it as a specific disease running a definite course. He hoped that some one who had a large number of cases of pertussis at his command would have moral courage enough to observe a series of, say, fifty cases without administering any medicine except a placebo; in this way we might at last ascertain the true natural history of the disease.

Dr. HENRY DWIGHT CHAPIN, of New York, spoke of the complications of pertussis, which he believed accounted chiefly for the great mortality attendant upon this disease, and those complications, he was convinced, were in large measure avoidable by instructing the parents more carefully regarding the danger of exposing the patients to all kinds of weather. While pneumonia was a very common and fatal complication, many children could be saved by sufficiently early and energetic treatment. Pulmonary collapse also was a very frequent complication. Where the cough persisted long after the usual time, it would usually be found that the tracheal and bronchial glands had become enlarged. The eruptive fevers often complicated pertussis, and this was particularly true of measles, in which

case both diseases were more than usually severe. The speaker laid special stress upon the great susceptibility of convalescents from pertussis to tubercular infection.

Heart Strain in Pertussis; its Effects and Treatment.—

Dr. HENRY KOPLIK, of New York, read a paper thus entitled. He described the mechanical effect of the paroxysms on the pulmonary and systemic circulations. During the paroxysm auscultation showed that the heart's action was very irregular, and that at times the sounds became almost inaudible, while in the intervals of the paroxysms the pulse was more irregular than was normal with children. He presented sphygmographic tracings which showed, after making due allowance for the dicrotism, which was always more marked in children than in adults, that the dicrotism in pertussis children was much more prominent than in healthy children. In thirty-six cases which the author had examined for albuminuria its presence had been proved in eighteen, although the quantity of albumin had never been great. In the treatment of this condition he had found digitalis of great service. Its administration should be begun as soon as there was oedema about the face, as this was the first sign of heart strain, and a minim of the tincture should be given for each year of life up to three years, and for older children proportionate doses.

Dr. L. EMMETT HOLT, of New York, opened the general discussion on the treatment of pertussis. He did not think any remedy shortened the course of the disease, but certain drugs exerted a very decided controlling influence on the severity and frequency of the paroxysms. In considering the action of a given remedy in pertussis, it was very important to take into account the stage of the disease at which its use was begun. He had made very careful observations in the New York Infant Asylum on the action of antipyrine, the children being watched for a week, and their condition noted before the treatment was begun; then the antipyrine was given for a week, after which its use was discontinued. Careful notes were kept throughout these three weeks in each case, and it was found that in four out of five cases the antipyrine diminished the number of paroxysms, and that in a smaller number the severity also was lessened. Its effect was temporary, but, on the whole, he had found it more efficient than phenacetine, acetanilide, and similar drugs. He began by giving six grains a day to an infant of six months, gradually increasing the daily dose to eight grains. He had been particularly surprised at the enormous mortality associated with pertussis pneumonia in institution children, fifty children having died out of a series of sixty cases.

Dr. NORTHRUP spoke of "lung-strain" in pertussis, as exhibited by an unusual degree of emphysema of the lungs. For this reason alone, if for no other, he thought it was very desirable to use any drug known to have the power of mitigating the severity of the paroxysms.

Dr. FREIGHT related his experience during the last year and a half with bromoform in pertussis. He gave it in doses of one or two drops along with a little spirit as a solvent. In most cases it reduced both the frequency and severity of the attacks. The fresh-air treatment was very important, and for the poor of the city it was a good plan to send them out on the ferry-boats as much as possible.

Dr. J. E. WINTERS, of New York, asserted that pertussis was a more fatal disease of childhood than either diphtheria or scarlatina, and it was so chiefly through its complications and sequelæ. These were dependent upon the frequency and severity of the paroxysms, which in turn were amenable to proper management—change of air, attention to the alimentary canal, counterirritation, etc. Of drugs, codeine had served him best, given to a child of two years in doses of a twelfth of a grain every eight hours. He believed that all opiates

might be given with perfect safety to the youngest and most delicate infants, if the precaution was taken to allow a sufficient interval to elapse between the doses. Many deaths which were attributed to eclampsia, pneumonia, and tuberculosis were in reality due to the sequelæ of pertussis.

Dr. SEIBERT said that the use of carbolic acid, both in the form of a spray and internally, had proved useful in infants suffering from pertussis, but not in older children. The fresh-air treatment as advocated by him consisted in keeping the windows open all day, even in rainy weather, and at least one window at night. There was but little difficulty in getting the mothers to obey these instructions, as they soon learned that their children were most comfortable when they were the most out of doors. The ideal treatment he considered the use of this method of securing plenty of fresh air combined with the administration of large doses of quinine every night, or night and morning.

Dr. A. CAILLÉ said that in the management of pertussis he insisted on plenty of fresh air, both day and night, with a dose of antipyrine at night in the severer cases and the systematic irrigation of the nasal cavities with boric-acid solution to prevent possible infection with diphtheria.

Dr. J. LEWIS SMITH said he had been guided in the treatment of this disease by the belief that it was due to a bacillus whose habitat was the upper respiratory passages, and accordingly he had generally employed antiseptic inhalations. Recently he had tried Moncorvo's method of applying a solution of resorcin with a brush or spray, but it had not proved uniformly successful. For older children these antiseptic inhalations were conveniently carried on by letting them use Robinson's inhaler containing creasote and terebene. He did not see how any one could doubt the efficacy of fresh air in allaying the severity of the attacks. If a child did not appear so well and bright as usual during the intervals of the paroxysms it was safe to infer that some complication was impending.

The Treatment of Constipation in Early Infancy.—Dr.

HOLT opened a discussion on this subject. He said that there must be a certain bulk to the stools in order that there might be regular and easy evacuations from the bowels, and an examination of normal stools of infants showed that they contained from twenty to forty per cent. of fat. From this we might infer that an infant's food must contain much more fat than could be absorbed. It was not surprising that we saw habitual constipation frequently among children who were fed on milk which was deficient in fat. It could not be denied that some constipated children were healthy, and in such cases it was fair to assume that there was enough fat in their food to supply the requisite nutriment, but not enough to give regular stools. Good breast milk contained four per cent. of fat, and cow's milk a little less; hence, as most of the fat was absorbed, the stools consisted chiefly of hard casein. Under such circumstances the substitution of good rich cream for some of the milk often relieved the constipation. The bowels of a nursing infant were not so easily regulated, but the same indication might be more or less successfully met by giving before nursing one or two teaspoonfuls of cream to the child. The quantity of casein in the mother's milk might be reduced by insisting that she should exercise freely in the open air. He had not found that the addition of milk sugar tended to relieve the constipation, and it was well known that most dispensary children were constipated, although they were quite commonly fed on condensed milk. Oatmeal seemed to owe what little effect it had in relieving constipation to the mechanical irritation produced by particles of the grain, for when it had been cooked for a long time and carefully strained, its relaxing action on the bowels was no longer appreciable.

Dr. LEROY M. YALE, of New York, took up the local treatment. He was of the opinion that massage, if faithfully carried out, even though unscientifically performed, was a valuable means of treating constipation in infants. The mother or nurse was instructed to do this by making small circular movements with the tips of the oiled fingers over the course of the colon, beginning in the right iliac fossa and passing upward along the ascending colon, then transversely, and finally down on the left side. It was best done on an empty stomach. Rectal constipation was the commonest variety of this very common ailment of childhood, and, in his opinion, it was largely due to the fact that when the child evacuated the bowels in the conventional way, sitting on a high seat over a rather wide opening, defecation was effected at a great mechanical disadvantage. The most favorable posture was that of squatting. He had rarely observed undue irritation from the use of suppositories, but on several occasions he had seen a belladonna rash develop after the use of a well-known and popular proprietary suppository which was sold under an innocent name. The dilatation of the bowel so commonly present in constipated infants was quite as likely to be the result of the retention of feces as to be due to the habitual use of enemata.

Dr. C. P. PUTNAM, of Boston, was expected to read a paper on the medicinal treatment of constipation in infants, but in his absence his paper was read by the secretary. He said that castor oil, when given in small doses, was very apt to interfere with digestion, and, if administered in larger doses, its after-effect was to increase the constipation. Senna, in the form of the compound licorice powder, did not lose its effect easily. Phosphate of sodium was the best saline cathartic for children, and olive oil and cod-liver oil were both useful in many cases.

Dr. LOUIS STARR opened the general discussion of this subject. He said he had used with great satisfaction, in addition to other recognized methods of treatment, a suppository composed of a twenty-fourth of a grain of extract of belladonna, a grain of purified aloes, and ten grains of cacao butter. They were used at first twice a day, the frequency being gradually reduced.

Dr. FRUITNIGHT emphasized the value of giving the child plenty of water in order to render the stools more fluid.

The Preservation of Milk.—Dr. H. D. CHAPIN, of New York, read a paper on this subject. It dealt with some experiments which he had made regarding the effect of static electricity in preventing the decomposition of milk, and also regarding the preservative action of certain chemical agents when added to the milk. He stated that one experimenter had been able, by subjecting milk to the action of static electricity for twenty minutes, to keep it sweet for nine days, and for a much longer time if the milk was occasionally subjected to a repetition of the electrical application. Under his direction experiments had been made on milk with both static electricity and a galvanic current of about thirty milliamperes. While they were not conclusive, he was led to believe that the subject was worthy of further study and research. Carbonated milk, kept in ordinary siphons, had been found to keep well, but this method of preserving milk had not proved a commercial success. The author said he had been led to try the effect of adding peroxide of hydrogen to milk, as, when so added, the peroxide of hydrogen decomposed, giving off one atom of oxygen and leaving water. His experiments, he thought, showed that a small percentage of peroxide of hydrogen would check the lactic-acid fermentation in milk. Incidentally, Dr. Chapin exhibited some of the residue taken from five hundred quarts of milk by means of a separator. The milk was from what was supposed to be a very well regulated dairy. He also exhibited

a sample of a new evaporated cream which was about to be put on the market.

Dr. SEIBERT said he had been especially interested in the experiments with the peroxide of hydrogen, for they showed that a two-per-cent. solution of the peroxide in milk was not able to kill the germs.

Dr. ROTCH thought such efforts as these were in the wrong direction; it should be rather the aim of the physician to look after the proper conduct of the dairy and the measures necessary for securing a clean and fresh milk. Evaporated milk did not remain sterile for any length of time after the can was opened.

Dr. KOPLIK recalled the fact that Lister had succeeded in keeping milk indefinitely by properly cleansing the udder of the cow. As the centrifugal machine separated the bacteria along with the cream, skimmed milk was comparatively free from these micro-organisms.

Dr. CAILLÉ said that, as peroxide of hydrogen was immediately decomposed by milk into oxygen and water, it was not only a harmless but a useless addition to the milk. He suggested that if evaporated cream was put up in ounce cans it might prove very convenient.

A New Antiseptic, Bismuth Naphthol-hydrate, was presented by Dr. CHAPIN. The chemist who prepared it, Mr. Lascar, apothecary to the Demilt Dispensary, New York, had said it contained about fifty per cent. of oxide of bismuth, was a much finer powder than ordinary bismuth, was fairly soluble in hot water, and was more potent than beta-naphthol in arresting fermentation. Ten grains of this new substance added to eight ounces of putrefying urine were sufficient to arrest the process, and the same quantity added to sixteen ounces of starch paste which was undergoing acid fermentation at once arrested the fermentation. Dr. Chapin said he had given it to a few children in doses of from two to five grains, in powders or suspended in mucilage. He thought it would prove to be a very valuable and non-toxic intestinal antiseptic.

A Gastric Neurosis in Childhood.—Dr. IRVING M. SNOW, of Buffalo, read a paper thus entitled. The subject of this affection was the eight-year-old daughter of a physician, whose antecedents were distinctly neurotic. There was a history of her having suffered for a number of years from curious attacks of vomiting, which recurred at intervals of about six weeks, and lasted from five to sixteen days. At intervals of three or four hours, during these attacks, there would be a burning sensation in the stomach, followed by nausea and the vomiting of a very acid fluid. There was evidently a periodical secretion of hyper-acid gastric juice. Her digestion at other times was good, and these attacks would be brought on by slight worry or excitement. They would terminate very abruptly. Large doses of potassium bromide and chloral given by the rectum had proved the most successful in the treatment, combined with proper attention to physical culture and to the general health.

Dr. HOLZ reported a very similar case which he had observed in conjunction with Dr. C. Herter. It had at last been noted that during the intervals the proportion of uric acid to the urea was 1 to 40, but that during the paroxysms it sank to 1 to 150. By excluding sugar from the child's diet and limiting the quantity of starches he had been greatly benefited. Two physicians had previously seen the child in these attacks, and had made a positive diagnosis of tubercular meningitis. This child was the son of a physician, and also came of a highly neurotic family.

Dr. CHRISTOPHER reported a similar case occurring in an adult, in which the symptoms had been associated with the elimination of uric acid, but the dietetic treatment which he had employed in this case with success had been directly the opposite of that used by Dr. Holt.

Dr. ROTCH said he had seen many such cases, and had written and published an article on this subject eight years ago. The causes were many and various, the attacks were usually self-limited, and the patients always recovered ultimately. In his opinion, dietetics had no place in their treatment.

Dr. SEIBERT had also had under his care a case of this kind in which three different consultants had made a diagnosis of meningitis. In each case the exciting cause had been the accumulation of feces in the ascending colon, and treatment directed to the relief of this difficulty had proved highly successful.

Dr. FORCHHEIMER had seen many of these cases, and entertained the theory that, owing to impairment of the filtering function of the liver, certain toxalbumines were present in the blood, and the attempt of the stomach to eliminate them gave rise to these attacks. This view seemed to be confirmed by the dietetic treatment, which had given him the best results.

Dr. CAILLÉ had found bile in the vomited matter and in the urine for a short time after the paroxysms.

Dr. SNOW expressed his surprise that the cases were so common in the experience of the members, as he had been unable to find mention of them in medical literature.

The Etiology of Incontinence of Urine was the subject of a paper by Dr. B. K. RACHFORD, of Newport, Ky., in which he stated that at the very beginning of life there was a normal incontinence. Age was an important factor, as it had been shown that functional immaturity of the nervous centers caused inhibition of reflex acts. The principal etiological factors were the instability of the nerve centers, the existence of anemia, and reflex irritation. Anemia, which was a most potent cause, was produced by tuberculosis, bad feeding, rheumatism, and syphilis in children, and the frequency with which these were operative was in the order named. The writer quoted experiments in which by partial closure of blood-vessels in animals a local anemia of greater or lesser degree had been produced. In these experiments it had been found that the longer this artificial anemia was kept up the more irritable did the nerve centers supplied by these vessels become.

Those who took part in the discussion of this paper dealt chiefly with the relation of anemia to this condition of incontinence.

The Treatment of Certain Forms of Anæmia in Children.

—Dr. F. FORCHHEIMER, of Cincinnati, read a paper on this subject. He said the question had often been asked why one should prescribe such large quantities of iron when the total quantity present in a person weighing seventy kilogrammes was only a little over three grammes. The answer that it must be first converted into an albuminoid before it can be absorbed was not satisfactory, for it was found that absorption was not favored by using an albuminoid of iron. Clinical observation showed that, as a result of increasing the quantity of hæmoglobin, not only was more carried by the corpuscles, but the number of red blood-corpuscles was increased also. From a study of seventy-one cases, the writer concluded that in the anemia of children the hæmoglobin was reduced more than the number of red corpuscles. Believing, as he did, that hæmoglobin had its principal source in the intestine, he had treated anemia with intestinal antiseptics, such as salol and hydronaphthol, and with arsenic, which acted on the formation of hæmoglobin. Salol or hydronaphthol, combined with iron, acted very well, but he had obtained almost marvelous results from the administration of salol before meals and of blood in some form after meals.

Dr. CAILLÉ cautioned against taking the position that iron was the only remedy appropriate for anemia. In large doses given to children it frequently aggravated the condition by im-

pairing digestion, while hydrochloric acid, by improving digestion, often succeeded much better.

Dr. KOPLIK reported a case of extreme anemia in a child in which complete recovery had taken place as a result of careful attention to diet without any systematic medication.

The Treatment of Rhachitis with the Lacto-phosphate of Calcium.—In a paper on this subject, Dr. J. HENRY FRUIT-NIGHT said that lime in the form of the phosphate was a regenerator of nerve and bone tissue, and its effects were permanent. Lactic acid increased its solubility, and hence rendered it a more convenient and efficient remedy. In the form of the official syrup of the lacto-phosphate it was readily given to children, and in the cases reported it had certainly seemed to be of great benefit.

A Case of Erysipelas of the Scalp and Face in an Infant aged Six Weeks was reported by Dr. SAMUEL S. ADAMS, of Washington. The case was of unusual interest not only because so young an infant had recovered, as erysipelas in infants under six months was almost invariably fatal, but because the blush of erysipelas had not made its appearance until five days after the first constitutional symptoms.

Dr. SEIBERT could not understand how the eruption could be delayed for such a long period, as in experimental erysipelas this stage was only twenty-four hours.

A New Incubator.—Dr. T. M. ROTCH, of Boston, described a new incubator which he had had constructed for the benefit of premature infants. Such an apparatus, he maintained, should be made of metal in such a manner that all parts could readily be cleaned and sterilized; it should be portable so that it might be carried from a central station to any house where it might be needed; the ventilation should not be left to the nurse, but should be automatic and thorough; its construction must be such as to admit of easy and perfect adjustment to any temperature which the physician might desire; the air admitted to the incubator must be freed from dust and organisms, and in some cases must be mixed with an additional portion of oxygen; and provision should be made for determining from time to time the weight of the infant. The incubators hitherto employed had been very crude, and had been particularly troublesome to manage on account of the difficulty of properly ventilating them. The slightest neglect on the part of the attendant often cost the life of the little one by suffocation. In the new incubator perfect ventilation was secured by an apparatus actuated by clock-work or by a candle in the flue, and the attendant had only to glance at a little anemometer to see whether or not it was working properly. The baby was heated equally by radiation on all sides, and the air it breathed was freed from impurities by filtration through cotton. The child lay on a bed which was a part of an ingeniously constructed balance, and to ascertain the weight of the infant at any time it was only necessary to touch a button and look through a glass window. In feeding the child, the nurse's arms were surrounded by a sleeve or jacket of rubber, so as to keep out as far as possible the external air. The incubator was constructed of polished metal, and weighed a hundred and fifty pounds. It presented a handsome appearance, and at present formed a part of the Harvard exhibit at the World's Fair.

Clinical reports were presented by Dr. HOLT, on Meningitis complicating Pneumonia; by Dr. WALTER LESTER CARR, on Sarcoma of the Back in a Baby; and by Dr. F. HUBER, on Abscess of the Lung in an Infant of Thirteen Months and a Half; Operation: Recovery.

The following papers were read by title: Intestinal Fever, by Dr. JACOB; A Clinical Study of Rheumatism in Children, by Dr. FLOYD M. CRANDALL; and Some Points in Connection with the Etiology of Rhachitis, by Dr. J. LEWIS SMITH.

Dr. JOHN M. KEATING, of Colorado Springs, was elected president for the ensuing year.

Miscellany.

The New York City Health Department and the Diagnosis of Diphtheria.—The department has recently issued the following circular of information concerning the use of bacterial cultures by the health department for the diagnosis of diphtheria:

Recent investigations have shown that a considerable proportion of pseudo-membranous and exudative inflammations of the throat and upper air passages, commonly considered as diphtheria and having the anatomical appearances found in diphtheria, are not true diphtheria. These cases may be called false diphtheria.

It has also been shown that a considerable number of cases considered to be false diphtheria are really true diphtheria. While in true diphtheria the mortality is very high and the danger of transmission to others is great, in false diphtheria the mortality is low and the danger of infection slight. The diagnosis between true and false diphtheria can be made by bacteriological examinations within twelve hours, while without their assistance it is difficult or impossible.

The health department is now prepared to make use of bacterial cultures for diagnosis in all cases of suspected diphtheria occurring in the city, and desires that in every case either the physicians should themselves make the inoculations or should authorize an inspector to make them. They should be made in every suspicious case at the earliest possible moment. It is only in this way that the full benefit of a positive diagnosis is obtained, for during convalescence the specific organisms often disappear from the throat. The inoculations are made by gently rubbing a cotton swab against the throat, and then drawing it over the surface of the culture medium. When the physician desires to make the culture himself (and this is usually the better plan, for it can be done earlier and is more agreeable to the family), he can obtain, free of cost, a culture tube and swab and the simple directions necessary for their use at any one of the apothecaries' whose addresses are given below. After the inoculation the tubes are to be returned at once to the apothecary from whom they were obtained. The tubes will be collected by the department every evening. If, on the other hand, the physician desires an inspector to make the inoculation, he is requested to state this when the notification of the case is sent to the department.

The diagnosis will be ready in every case by noon of the following day. The attending physician can obtain this immediately by telephoning to the laboratory (telephone number, 1191 Spring), or, when this is not done, he will be notified by mail.

Cases which prove to be false diphtheria will not be visited by the department. Cases, on the other hand, which prove to be true diphtheria will be subjected to the usual rules and regulations covering contagious diseases.

The culture tubes and swabs can be obtained of the following apothecaries: Fraser, 138th Street and Third Avenue; Spear, 125th Street and Eighth Avenue; Dorn, Ninety-third Street and Ninth Avenue; Dougherty, 411 West Fifty-ninth Street; Rupp, Thirty-sixth Street and Ninth Avenue; Proben, Twelfth Street and Second Avenue; Ottiwell, Ludlow and Broome Streets; Marsh, 125th Street and Madison Avenue; Barnes, 110th Street and Madison Avenue; Hoyppendorf, Sixty-seventh Street and Third Avenue; Schoonmaker, Forty-second Street and Park Avenue; Fraser & Co., Twenty-ninth Street and Fifth Avenue; Bigelow, Eighth Street and Sixth Avenue; Laboratory, 42 Bleeker Street.

The Permanent Organization of the Pan-American Medical Congress.—The American Medical Association's committee has reported, through its chairman, Dr. Charles A. L. Reed, as follows:

Your committee appointed at Washington to effect a permanent organization of an intercontinental American medical congress begs leave to submit its final report as follows:

An organization has been effected under the style and title of the Pan-American Medical Congress, to be held at the city of Washington, D. C., September 5, 6, 7, and 8, 1893, under the presidency of Professor William Pepper, M. D., LL. D., of Philadelphia. The details of the organization are set forth in the published preliminary announcement of the congress, copies of which are respectfully submitted herewith, in both English and Spanish, as a part of this report.

Since the publication of this preliminary announcement an organization has been effected in Paraguay. Your committee is therefore pleased to state that an organization of the Pan-American Medical Congress exists in every State and Territory of the United States, and in every remaining country and colony of the Americas, including the West Indies and Hawaii.

A provision has been adopted since the foregoing publication whereby every medical society—national, colonial, and local—has been made a constituent organization of the congress.

The committee begs leave to report further that the organization which has been effected has been, by the authority you have conferred upon it, and is still very actively engaged in carrying out the practical ends of the congress.

The Senate and House of Representatives at the first session of the last Congress adopted a joint resolution authorizing the President to extend an invitation to the Governments of the Western Hemisphere to send official delegates to the meeting, and to appoint similar delegates on behalf of our own Government. This official invitation has been issued through the Department of State, and all replies so far received have been in the nature of acceptances. The President has indicated that the Government of the United States will be represented at the Congress by six delegates. At the last meeting of the Executive Committee of the Congress a resolution was adopted directing that, in view of the Columbian exercises in progress in America this year, and in view of the relations which have become intimate between the United States and Spain, the Government of the latter country be requested to send delegates to the Congress. It was thought that the exceptional relations of amity existing between the two countries would warrant a course which has been avoided with regard to all other European countries out of deference to the interests of the International Congress which is to meet in Rome.

The National Congress at its last session appropriated fifteen thousand dollars (\$15,000) for the purposes of entertainment of the meeting.

The President of the United States has consented to open the congress in person, and to extend the courtesy of a reception at the White House to delegates and their families.

A special feature of the congress will be the proceedings of the sections in hygiene, climatology, and demography and in marine hygiene and quarantine. The proceedings of these sections will be largely of the nature of a sanitary conference, with particular reference to practical questions of public health and of imminent importance.

With this object in view, every municipality of the three Americas, including the West Indies and Hawaii, has been invited to send an official delegate, and a very large number of acceptances have already been received.

The titles of several hundred papers, accompanied in many instances with abstracts, have already been received from representative medical writers in the English, Latin, French, and Portuguese countries. This, of itself, assures the scientific success of the congress.

Invitations have been extended to representative European scientists to be the guests of the congress, and a number of acceptances have been received.

In conclusion, your committee begs leave to express its appreciation of the spontaneous response to its appeal for funds in the form of advance registration fees from the public-spirited representatives of our profession in America. Let it be remembered, no registration fees will be accepted from members of the congress residing outside the United States. Although money has been realized from advance registrations in amount sufficient to pay some of the preliminary expense of organization, a still larger sum is needed with which to meet accumulated obligations.

It should be held in mind that the congressional appropriation, mea-

ger as it is, will be available only for purposes of entertainment at the time of the meeting, and that the expense involved in publication, correspondence, and clerical work is necessarily very heavy, and must be met at once. The members of the profession are therefore again urgently requested to register at once by paying the fee (\$10) to the treasurer, Dr. A. M. Owen, Evansville, Ind. Those who thus become members of the congress but who may be prevented from attending the meeting will receive a set of the transactions, which, of themselves, promise to be worth more than the amount of the registration fee.

In submitting this, its final report, your committee begs leave to thank the association and its executive officers for cordial support, and the medical press for its energetic and efficient aid in promoting this earnest movement for the unification of the medical profession of all the Americas.

Professor Liebreich on Mineral Waters.—In the *British Medical Journal* for April 22d the *Journal's* Berlin correspondent says:

"The following is an abstract of a paper on Artificial and Natural Mineral Waters, read by Professor O. Liebreich at the Balneological Congress recently held in Berlin. He began by asking: Is chemistry sufficiently advanced yet to produce artificial mineral water equal in all respects to the natural water? The answer can not be in the affirmative. Some substances, such as alizarine, indigo, urea, etc., can be produced synthetically, the artificial product being in every respect identical with the natural one. But in the case of mixtures such as mineral waters are, synthesis is a much more difficult matter. The analysis of each of the first-mentioned substances gives exactly a hundred per cent., while in the case of artificial mineral waters the analyses—even of the most renowned analysts—fall short of a hundred per cent., thus leaving a remainder the nature of which is absolutely unknown.

"Many mineral waters on evaporation leave an organic residuum which goes by the name of glairine. It can not be affirmed with certainty that this residuum is therapeutically efficacious, but just as little can it be denied, and certainly the residuum is not contained in the analyses of the artificial mineral waters. Further, in mineral waters, carbonic-acid gas occurs both free and in chemical combination. In 1882 it was discovered that carbonic-acid gas forms a hydrate—that is to say, that there exist several kinds of carbonic-acid gas. The presence of a carbonic-acid gas hydrate had long been concluded from the existence of another combination that is a derivative of it, namely, carbonic-acid ethyl, a carbonic-acid hydrate, the two hydrogen atoms of which are replaced by two C_2H_5 groups—that is, carbonic-acid ethyl ether. Carbonic-acid ethyl is known for its agreeable taste. It is probably contained in champagne and in other alcoholic effervescent drinks. Ballo was the first to show the presence of carbonic-acid hydrate experimentally. If a magnesium wire be introduced into carbonic-acid gas, no reaction takes place. If a magnesium wire be introduced into water which has previously been saturated with carbonic-acid gas, after some time gas is developed. This gas is not carbonic acid but pure hydrogen. We must conclude that in the water the carbonic-acid gas has been transformed into carbonic-acid hydrate, and this develops hydrogen, as every acid does when brought in contact with metal. It may be supposed that the action of anhydric carbonic-acid gas is different from that of carbonic-acid hydrate. The formation of hydrate takes place quickly in pure water, but very slowly in concentrated salt solutions.

"Now, there are substances which are difficult to demonstrate as such by analysis because they decompose very easily, so that only the products of their decomposition can be shown. Such a substance is carbon-oxide-sulphide (COS), which when alone shows neither the reactions of carbonic-acid gas nor of sulphureted hydrogen, but which, when for some time in contact with water, is decomposed into carbonic-acid gas and sulphureted hydrogen, according to the formula $COS + H_2O = CO_2 + H_2S$. In mineral waters at the springs carbon-oxide-sulphide occurs; the analysis shows it as carbonic-acid gas and sulphureted hydrogen.

"There is a further reason for thinking that minimal quantities of substances in mineral waters may be of importance. The salt mixture forms a whole from which no part can be taken away without disturb-

ing the equilibrium. This shows the fallacy of the old-fashioned notion that springs, the chief ingredients of which are the same, have the same therapeutic effect even though differing in some minor ingredients. There is no analysis so exact or sensitive as our senses—taste and smell. A perfume of musk in the air is perceived by the smell even though it can not be demonstrated by chemical analysis. Even the best manufactured artificial mineral waters differ from the natural ones in taste and value. This difference is not easy to explain. It is sometimes found, however, that the two mineral waters, otherwise identical, differ as regards electrical conductivity.

"As to the so-called 'indifferent' springs, it is a mistake to speak of them as of minor value. It must be remembered that they too contain mineral ingredients, if only in minimal quantities, which counteract the harmful properties of perfectly pure distilled water. Even hydropathy is a mineral-water treatment, for if the water used were without traces of mineral substances it would be poisonous. This has been sufficiently proved elsewhere."

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

FURTHER EXPERIENCES WITH DIRECT ELECTRIZATION OF THE STOMACH.

By MAX EINHORN, M. D.,

PHYSICIAN TO THE GERMAN DISPENSARY AND
INSTRUCTOR IN CLINICAL MEDICINE
AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL.

IN my paper,* A New Method for Direct Electrization of the Stomach, I put much stress on the necessity of applying the electric current within the stomach—a fact which has been previously recognized by different authors. At the same time I devised a new method of direct electrization, which frees it of all the difficulties with which it has hitherto been connected. The novelty consists in that I employ a deglutable electrode. There is no need of my lingering on the *modus operandi*. The same is known to all of you, and is fully described in the paper mentioned.

About a year later I published another article, entitled Therapeutic Results of Direct Electrization of the Stomach;† the same contained several experimental investigations upon the effect of direct gastro-electrization on the gastric secretion in man, and besides a detailed description of all the cases I had treated by direct electrization of the stomach during eighteen months.

There were twenty-nine cases in which direct gastrofaradization had been applied, five in which first direct faradization and afterward direct galvanization of the stomach were administered, and one in which the galvanic current was given alone. The *résumé* of this paper was as follows:

"Direct gastrofaradization proves to be useful in many ways in most chronic diseases of the stomach. The favorable results appear very clearly and pretty quickly in those cases of stomach dilatation which are not caused by any obstruction of the pylorus, but merely by the relaxation of the muscular coat of the stomach. Here the gastrofaradization is beneficial, no matter whether in these cases there is hyperacidity or subacidity of the stomach contents. Cases of relaxation of the cardia (eructations), and also of relaxation of the pylorus (presence of bile secretion in the stomach), were very favorably influenced by faradization. Here the result was most markedly pronounced, inasmuch as, besides the subjective amelioration of the patient, the objective examination showed at the same time the absence of bile in the stomach contents (there was, however, only one case of relaxation of the pylorus under observation).

Direct gastrog galvanization was administered with very good results in cases of obstinate gastralgia; several of them had resisted every therapeutic means, but yielded to the influence of galvanization."

As I have mentioned in the above-quoted papers, the literature on the efficacy of direct gastro-electrization is very scanty—i. e., very few have been treated by this method. Stockton‡ is the only author who has treated a larger series of cases by direct gastrofaradization.

Since the publication of the two papers referred to on direct electrization of the stomach no experiences by other authors have thus far been communicated. Ewald* only mentions that he had very good results with direct gastrofaradization in two cases of ructus. This author recommends the same treatment in all those cases where the musculature of the stomach has to be strengthened. Ewald approves of the shape and form of my electrode, but mentions that he finds it difficult to get down into the patient's stomach. For this reason Ewald has modified my electrode by using a thicker rubber tubing around the wire; the tubing corresponds to No. 13 Charrière, and is about a millimetre and a half thick.

J. Ravé† has treated two cases of dyspepsia by direct gastrog galvanization, and speaks in favor of the deglutable electrode.

I must say that the insertion into the stomach of the deglutable electrode offers no difficulties. The principal point is to put the electrode far back into the pharynx and to let the patient meanwhile drink something. It is advisable to have the patient drink slowly about a glassful of water, and to have a talk with him, in order to detract his attention from the procedure. The electrode usually soon reaches the stomach, and it seldom happens that it remains lying in the fauces. If this does happen, the patient must eat a small piece of bread and drink some water; the electrode will then find its way into the stomach with the bread.

I have applied the deglutable electrode to more than a hundred people, and met with only one who was unable to swallow it. In this patient I had to use an electrode with a thicker rubber tubing (analogous to Ewald's modification) which could be pushed into the stomach. He, however, was a timid man, without any will power, who did not believe in his being able to do anything spontaneously. When told to swallow, his reply was, "I can not." In all other cases the deglutable electrode has been successfully applied. After the first application its insertion is much easier, the patient being accustomed to the procedure.

The principal advantage of the deglutable electrode consists, firstly, in that we are able to apply the method in people not used to the stomach tube, and, secondly, in that the thin cord does not cause any uncomfortable feeling to the patient during the entire electric sitting and does not provoke salivation. Another advantage lies in the circumstance that the deglutable electrode can be administered even in those cases in which ulcer of the stomach is suspected, whereas the old stomach electrode could not be introduced in them for fear of causing perforation.

By means of the deglutable electrode‡ a regular course

* C. A. Ewald. *Berliner klinische Wochenschrift*, 1892, Nos. 26 and 27.

† J. Ravé. *Contribution à l'étude du traitement des dyspepsies par l'électricité*, Paris, 1893. (Henri Jouve, Imprimeur de la Faculté de Médecine.)

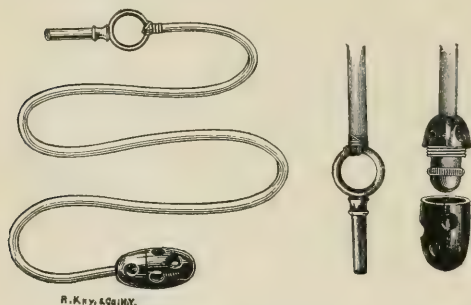
‡ The attachment of the cord to the capsule of the deglutable electrode has been accomplished by Richard King & Co. (17 Park Place,

* Max Einhorn. *Medical Record*, May 9, 1891.

† *Ibid.*, Jan. 30 and Feb. 6, 1892.

‡ Charles G. Stockton. *American Journal of the Medical Sciences*, 1890, p. 20.

of electric treatment of the stomach becomes possible in many cases and is facilitated in all.



After these introductory remarks permit me to report my further experiences of direct electrization of the stomach gathered during the past year.

A. *In Reference to the Physiological Effect of Direct Gastro-electrization.*—In my previous papers I have proved by experiments that direct gastrofaradization ordinarily increases the secretion of gastric juice—i. e., there is found in the stomach a higher degree of acidity (caused by HCl) during electrization than at other times. The question arose whether this increased secretion of the stomach under the influence of electricity continues for some time after the application of the current. In order to decide this point the following experiments were made:

CASE I.—S. H., twenty years old.

1. *December 17, 1892.*—When fasting, drinks a glassful of water and swallows the electrode, which is left in the stomach for ten minutes and withdrawn, electricity not being applied. After forty minutes the stomach contents are obtained by means of a tube and examined: HCl +, acidity = 42.

2. *22d.*—When fasting, drinks a glassful of water and is gastrofaradized directly for ten minutes. Forty minutes after the drinking of the water the stomach contents are obtained and examined: HCl +, acidity = 52.

3. *25th.*—When fasting, drinks a glassful of water and is gastrogalvanized for ten minutes (negative pole in the stomach). Forty minutes after the partaking of the water the stomach contents are obtained and analyzed: HCl +, acidity = 20.

CASE II.—T. M., twenty four years old.

1. *January 10, 1893.*—When fasting, swallows the deglutable electrode and drinks a glassful of water. After ten minutes the electrode is withdrawn, electricity not having been applied. After half an hour the stomach contents are obtained and examined: HCl +, acidity = 14.

2. *12th.*—When fasting, drinks a glassful of water and is gastrofaradized (the deglutable electrode within the stomach) for ten minutes. Half an hour later the stomach contents are obtained and examined: HCl +, acidity = 18.

3. *24th.*—When fasting, drinks a glassful of water and is gastrogalvanized directly for eight minutes (the negative pole being in the stomach). After half an hour the stomach contents are obtained and examined: HCl +, acidity = 20.

CASE III.—C. H., twenty-three years old.

New York), the manufacturers of the instrument, in an excellent way. The cord is screwed into the capsule. The size and form of the electrode correspond with the accompanying figure.

1. *February 4, 1893.*—When fasting, swallows the deglutable electrode and drinks a glassful of water. After ten minutes the electrode is withdrawn, electricity not having been applied. After thirty-five minutes the stomach contents are obtained and examined: HCl +, acidity = 46.

2. *5th.*—When fasting, drinks a glassful of water and is gastrogalvanized directly for ten minutes. Thirty-five minutes later the stomach contents are obtained and examined: HCl +, acidity = 72.

From these experiments it seems that the electric action ordinarily increases the HCl secretion even during the first period after faradization.

How does the absorbent faculty of the stomach act immediately after electrization?

You all know that we are able to examine the absorbent faculty of the stomach by means of potassium iodide. The patient takes 0.2 of iodide of potassium in a gelatin capsule. The saliva is then tested by means of starch paper and nitric acid every minute or two. If the starch paper moistened in the saliva shows a slight violet or blue discoloration after the addition of a drop of nitric acid, then it indicates that the potassium iodide had been meanwhile partly absorbed from the stomach and eliminated through the saliva.

In order to see whether direct electrization of the stomach hastens the absorbent power of the same, the following experiment was conducted in like manner on several people: Firstly, the individual drank while fasting a glassful of water. After the lapse of ten minutes iodide of potassium 0.2 in a gelatin capsule and 20 c. c. of water were given. The saliva was examined every minute with starch paper and nitric acid and the result carefully noted. Secondly, about a week later the same individual while fasting drank a glassful of water and was treated with direct electrization of the stomach. After this iodide of potassium 0.2 in a gelatin capsule and 20 c. c. of water were given and the saliva examined as before. The results obtained in both trials (one without, the second with, electricity) can thus be compared and the influence of direct electrization studied.

Of the many uniform experiments made in this respect I shall report three as examples:

CASE I.—L. T., twenty-four years old.

1. *August 23, 1892.*—While fasting, drinks a glassful of water; ten minutes later he takes iodide of potassium 0.2 with 20 c. c. of water.

After 1 minute = no reaction.

" 2 minutes = " "

" 3 " = " "

" 4 " = " "

" 5 " = " "

" 6 " = " "

" 7 " = " "

" 8 " = + violet coloration.

2. *30th.*—When fasting, drinks a glassful of water and is gastrofaradized for ten minutes. He then takes iodide of potassium 0.2 with 20 c. c. of water.

After 1 minute = no reaction.

" 2 minutes = " "

" 3 " = " "

" 4 " = " "

" 5 " = " "

" 6 " = + traces.

" 7 " = + violet discoloration

CASE II.—Th. S., forty-four years old.

1. December 19, 1892.—When fasting, drinks a glassful of water. Ten minutes later he takes iodide of potassium 0.2 with 20 c. c. of water.

After 5 minutes = no reaction.

" 6 " = " "
 " 7 " = " "
 " 8 " = " "
 " 9 " = " "
 " 10 " = + traces.
 " 11 " = + "
 " 12 " = + clearly.

2. 26th.—When fasting, drinks a glassful of water and is gastrofaradized for ten minutes. Then he takes iodide of potassium 0.2 with 20 c. c. of water.

After 2 minutes = no reaction.

" 3 " = " "
 " 4 " = " "
 " 5 " = " "
 " 6 " = " "
 " 7 " = " "
 " 8 " = + traces.
 " 9 " = + clearly.
 " 10 " = + strong reaction.

3. January 2, 1893.—When fasting, drinks a glassful of water and is gastrogalvanized (negative pole within the stomach) for eight minutes. He then takes iodide of potassium 0.2 with 20 c. c. of water.

After 3 minutes = no reaction.

" 4 " = " "
 " 5 " = " "
 " 6 " = " "
 " 7 " = + traces.
 " 8 " = + "
 " 9 " = + much.

CASE III.—Samuel H., twenty-four years old.

1. January 8, 1893.—When fasting, drinks a glassful of water. Ten minutes later he takes iodide of potassium 0.2 with 20 c. c. of water.

After 2 minutes = no reaction.

" 3 " = " "
 " 4 " = " "
 " 5 " = " "
 " 6 " = " "
 " 7 " = " "
 " 8 " = + traces.
 " 9 " = + "
 " 10 " = + clearly.

I. TABLE OF CASES TREATED BY DIRECT GASTROFARADIZATION.

(From December, 1891, to December, 1892.)

No.	Name.	Age.	Disease.	Principal complaint.	How long sick before electrization.	How long treated.	Result of treatment.	REMARKS.
1	Robert P.	28 yrs.	Dilatation of the stomach, combined with hyperacidity.	Fullness, belching, crampy pains, diarrhoea.	About 3 yrs.	4 mos.	Disappearance of all symptoms.	
2	Murray F.	19 yrs.	Do.	Fullness, belching, pains, constipation, despondency.	About 3 yrs.	4 mos.	Greatly improved.	
3	Josef F.	27 yrs.	Do.	Bad taste, pains in the epigastrium, constipation.	About 2 yrs., with free intervals.	1 mo.	Disappearance of symptoms.	
4	Edward K.	63 yrs.	Do.	Belching, crampy pains, diarrhoea, weakness.	About 12 yrs.	3 mos.	Greatly improved.	
5	Aron L.	36 yrs.	Do.	Complete anorexia, weak feeling, constipation.	6 yrs.	3 mos.	Do.	
6	James G.	43 yrs.	Do.	Anorexia, pains after each meal, constipation.	5 yrs.	3 mos.	Disappearance of symptoms.	Eight pounds gained during treatment.
7	Benjamin B. W.	23 yrs.	Do.	Anorexia, pains, constipation.	1 yr.	3 mos.	Do.	Eleven pounds gained during treatment.
8	Johann St.	33 yrs.	Do.	Belching, constipation, burning sensation in the scrobiculum.	12 yrs.	1 mo.	Improved.	
9	Morris G.	24 yrs.	Do. Mitral insufficiency.	Anorexia, belching, pains, constipation.	2 yrs.	1 mo.	Greatly improved.	
10	Gustav K.	26 yrs.	Do. Mitral insufficiency.	Anorexia, belching, pains, weakness.	4 to 5 mos.	1 mo.	Do.	
11	Mrs. S. M.	About 30 yrs.	Hyperacidity.	Burning sensation in the scrobiculum, belching.	4 to 5 mos.	1 mo.	Disappearance of symptoms.	
12	Miss Stella B.	About 34 yrs.	Enterptosis combined with hyperacidity.	Do.	4 yrs.	6 wks.	Do.	There was real gastropotosis. <i>Ren mobilis dexter</i> . Patient before coming under my treatment had undergone for three months the meat and hot-water régime. She looked like a skeleton. After four weeks of the electric treatment, gained nineteen pounds.
13	Mrs. Pauline F.	43 yrs.	Do.	Inability to eat, burning sensation after meals, weakness.	2 yrs.	6 wks.	Do.	The gastrodiafrane shows the situation of the stomach between the navel (small curvature) and the symphysis pubis. <i>Ren mobilis dexter</i> .

TABLE OF CASES TREATED BY DIRECT GASTROFARADIZATION.—(Continued.)

No.	Name.	Age.	Disease.	Principal complaint.	How long sick before electrization.	How long treated.	Result of treatment.	REMARKS.
14	Mrs. Henrietta C.	45 yrs.	Enteroptosis combined with hyperacidity.	Anorexia, belching, constipation.	12 yrs.	.....	Improved.	Real gastropptosis.
15	Mrs. Antonia B.	36 yrs.	Enteroptosis, gast. gland. chr.	Anorexia, burning sensation after meals, constipation.	5 yrs.	3 mos.	Disappearance of symptoms.	Eight pounds gained during treatment.
16	Mrs. Gussie W.	34 yrs.	Do.	Do.	4 yrs., with free intervals.	2 mos.	Do.	
17	Mrs. Editha Sch.	35 yrs.	Do.	Anorexia, uncomfortable after meals.	6 yrs.	2 mos.	Do.	
18	Carl Sch.	36 yrs.	Do.	Anorexia, burning sensation in the scrobiculus.	1 yr.	1 mo.	Do.	The examination of the stomach contents revealed after Ewald's test breakfast before undergoing the electric treatment no free HCl; two weeks later free HCl was present.
19	Walter C.	28 yrs.	Do.	Poor appetite, belching, bloated feeling in the abdomen.	8 mos.	2 mos.	Do.	Real gastropptosis (gastrodiaaphany).
20	Miss Meta Z.	About 30 yrs.	Gast. gland. chr.	Anorexia, heavy feeling in the chest after meals.	5 yrs.	3 mos.	Do.	<i>Ren mobilis dexter</i> . Has gained twelve pounds during treatment. First, no free HCl; afterward, HCl+.
21	Mrs. L. L. G.	About 40 yrs.	Do.	Anorexia, bad taste, belching, bloated feeling.	2 yrs.	3 mos.	Do.	The gastrodiaaphane shows the stomach one finger-width above the navel (small curvature), extending to about two to three finger-widths above the symphysis pubis. <i>Ren mobilis dexter</i> . In the beginning, no free HCl; afterward, HCl present.
22	Chs. H. Alb.	About 44 yrs.	Do.	Poor appetite, epigastric pains after meals.	1 yr.	2 mos.	Do.	Ten pounds gained.
23	Mrs. Cora A.	32 yrs.	Repeating; gast. gland. chr.	Aggravated belching, anorexia, pains.	5 yrs.	2 mos.	Do.	
24	Marx D.	43 yrs.	Do.	Aggravated belching, bulimia, vertigo.	3 mos.	3 wks.	Do.	
25	Aron L.	50 yrs.	Atonia cardiae et pylori; dilat. ventriculi.	Vomiting, belching, severe gastralgia.	5 yrs.	5 wks.	Do.	When fasting, the stomach contained at the beginning gastric juice and bile; after a while there was no admixture of bile, and later on no fluid, in the stomach when fasting. HCl was present all along.
26	Alfred K.	28 yrs.	Atonia gastro-intestinalis.	Belching, bloated feeling, diarrhoea.	About 1 yr.	2 mos.	Greatly improved.	In the beginning of the treatment one hour after the test breakfast there was no free HCl; after two weeks' treatment HCl was present in normal amount. Patient has gained four pounds.
27	Miss Jennie F.	30 yrs.	Dilatatio ventriculi.	Anorexia, gastralgia.	5 yrs.	3 mos.	Do.	
28	Johann C.	32 yrs.	Dilatatio ventriculi, hyperacidity.	Belching, poor appetite, often diarrhoea.	3 yrs.	6 wks.	Not much improved.	
29	Henry R.	40 yrs.	Dilatatio ventriculi, gast. gland. chr. Beginning atrophy.	Absolute anorexia, pains after meals.	4 yrs.	3 mos.	Improved.	Besides the stomach trouble there was a vitium cordis. One hour after the test breakfast there was never found free HCl; renet was present.
30	Harris B.	32 yrs.	Do.	Belching of a very offensive gas, occasionally vomiting.	6 yrs.	6 wks.	Do.	There was no free HCl present one hour after the test breakfast, although the acidity was high, caused by the presence of organic acids. After three weeks' treatment the belching disappeared, the organic acids were less, but free HCl could be detected only after faradization. Upon my advice the patient went South for further recreation.
31	George W. St.	62 yrs.	Anæmia pernicio-a? Gastralgia.	Constant pain in the scrobiculus.	1 yr.	3 wks.	Not improved.	

II. TABLE OF CASES FIRST TREATED BY DIRECT FARADIZATION, AND THEN BY DIRECT GALVANIZATION OF THE STOMACH.

(From December, 1891, to December, 1892.)

No.	Name.	Age.	Disease.	Principal complaints.	How long undergoing electric treatment.	How long gastro-faradized.	With what result.	How long gastro-galvanized.	Number of galvanic sittings.	Result of treatment.	REMARKS.
1	Theodor L.	19 yrs.	Dilatation of the stomach, hyperaciditas, mitral insufficiency.	Belching, severe pains after meals.	6 mos.	1 wk.	Belching disappeared, but the pains persisted.	16 d.	5	Disappearance of symptoms.	
2	Paul F.	33 yrs.	Dilatation of the stomach, erosions of the gastric mucosa; first heart sound not clear.	Continual severe pains in the epigastric region, vertigo occasionally.	1 yr.	2 wks.	Slight amelioration.	25 d.	7	Do.	The examination of the stomach contents one hour after the test breakfast before the electric treatment revealed <i>no free HCl</i> , and the acidity was only = 12. In the middle of the treatment free HCl was present, and the acidity = 28.
3	George V. Sk.	About 35 yrs.	Dilatation of the stomach, hyperaciditas.	Severe pains, weak feeling, inability to do much mental work.	2 yrs.	6 wks.	Greatly improved, but pains once in a while.	2 mos.	6	Do.	In the beginning of treatment, one hour after the test breakfast: HCl+, acidity = 104; at the end of treatment: HCl+, acidity = 88.
4	David H. H.	42 yrs.	Dilatation of the stomach, hyperaciditas, tabes dorsalis incipiens.	Severe gastralgia, poor appetite, weak feeling.	1 yr.	2 wks. and a half.	Improved very little.	2 wks.	3	The pains were less severe.	
5	Adolf F.	33 yrs.	Hypersecretio gastrica continua periodica, dilatation of the stomach, hyperaciditas.	Severe gastralgia, nausea and vomiting spells in the morning, sleeplessness.	2 yrs., with free intervals.	3 wks.	Greatly improved, no vomiting, pains less severe.	6 wks.	5	Disappearance of all symptoms.	The stomach contained when fasting, in the beginning of treatment, about 50 to 60 c. c. of gastric juice. After the third week of treatment it was empty in the fasting condition of the patient.
6	Charles D.	24 yrs.	Hyperaciditas, ructus.	Severe gastralgia, belching, burning sensation in the scrobiculus.	8 mos.	2 wks.	Improved, belching disappeared, less pains.	1 wk.	3	Improved, burning sensation less, only once in a while.	(The patient had to go back, on account of business, to his native city, New Orleans, and was obliged to stop the treatment.)
7	Edwin N. D.	32 yrs.	Gast. gland. chr., with beginning atrophy; dilatation of the stomach, mitral insufficiency.	Gastralgia, belching, weak feeling.	5 yrs.	1 wk.	Less belching, pains same as before.	4 wks.	8	Disappearance of all symptoms.	
8	Morris S.	43 yrs.	Hyperaciditas, weak heart, arteriosclerosis.	Fainting spells after meals, constant burning sensation in the epigastric region, gastralgia occasionally, constipation.	5 yrs.	4 d.	No effect whatever.	3 mos.	27	Disappearance of all symptoms.	

2. 15th.—While fasting, drinks a glassful of water, and is directly gastrofaradized for ten minutes. He then takes iodide of potassium 0.2 with 20 c. c. of water.

After 2 minutes = no reaction.

" 3 " = " "
 " 4 " = " "
 " 5 " = " "
 " 6 " = " "
 " 7 " = + traces.
 " 8 " = + clearly.
 " 9 " = + much.

3. 22d.—While fasting, drinks a glassful of water and is gastrogalvanized (the negative pole within the stomach) for

eight minutes. He then takes iodide of potassium 0.2 with 20 c. c. of water. After 3 minutes = no reaction.

" 4 " = " "
 " 5 " = " "
 " 6 " = + traces.
 " 7 " = + "
 " 8 " = + much.

From these experiments it appears that the absorbent faculty of the stomach is increased by direct gastro-electrization (faradization or galvanization), a fact which hitherto, as far as I am aware, has not been experimentally proved by others.

B. *Experiences of the Therapeutic Effect of Direct Electrization of the Stomach.*—As I have already fully described in my last paper a large number of cases treated by direct gastro-electrization, I shall now refrain from a detailed description of different cases and shall limit myself to a brief report, giving in tables all the cases recently treated by this method.

All cases contained in the accompanying tables are those of private patients of mine who were treated by direct gastro-electrization with the deglutable electrode in the course of thirteen months (from the beginning of December, 1891, to the end of December, 1892). The time of electric treatment for each patient and all other necessary points are given in the tables.

Summary.—Thus there were forty-two patients treated by direct electrization of the stomach. Only in two no amelioration of the condition could be noticed; in all others there was either a complete disappearance of the subjective symptoms or at least a great amelioration of the same. Besides the subjective sensation of amelioration in the patients, in many cases there could be noticed at the same time a better appearance of the patient; in several cases an increase in weight was noticed and will be found reported in the tables. In those cases in which no mention is made of the weight in the tables, either the weight was the same as in the beginning of the treatment or the patients did not keep a record of it. In several cases an amelioration of the objective symptoms could be noticed—

III. TABLE OF CASES TREATED ONLY BY DIRECT GALVANIZATION OF THE STOMACH.

(From December, 1891, to December, 1892.)

No.	Name.	Age.	Disease.	Principal complaint.	How long sick before the electrization.	How long galvanized.	Number of sittings.	Result of treatment.	REMARKS.
1	Albert M.	34 yrs.	Enteroptosis, <i>ren mobilis dexter</i> , hyperaciditas, heart sounds not clear.	Severe gastralgia, fainting spells occasionally, constipation.	2 yrs., with free intervals.	2 mos.	12	Disappearance of all symptoms.	Six pounds gained during treatment.
2	Leonard S. R.	30 yrs.	Hyperaciditas.	Severe gastralgia.	3 mos.	5 wks.	12	Do.	Patient had undergone the galvanic treatment with very good result about a year previous to this attack. During last summer patient had much mental strain, and this was probably the cause of relapse.
3	Paul W.	42 yrs.	Gast. gland. chr., dilatation of the stomach, mitral insufficiency, dilatation and hypertrophy of the heart.	Gastralgia, palpitations of the heart, poor appetite, weakness.	About 2 yrs.	2 mos.	16	Do.	When beginning treatment, the pulse was intermittent; two weeks later, regular. The result of examination of stomach contents was previous to galvanic treatment: HCl ?, acidity = 24; one month later: HCl +, acidity = 80.

Table I contains thirty-one cases treated by direct gastrofaradization. In eighteen all subjective symptoms of sickness disappeared; in seven there was a great amelioration—*i. e.*, a subsidence of nearly all the symptoms; in four there was a noticeable improvement, and in the remaining two the condition of the patient remained unchanged.

Tables II and III contain merely cases with complaints of severe pains in the gastric region (gastralgia).

On Table II will be found those cases which were treated first by the faradaic and thereafter by the galvanic current. The galvanization was administered in these cases for the reason that faradization in some of them effected an improvement only, but no cure, and in some again no change whatever. The final results were very good. In six the gastralgia, as well as all other symptoms of disease, totally disappeared, and in the remaining two, in which the galvanic current had not been applied long enough (each of them had only three galvanic sittings), there was a marked amelioration.

In Table III three cases are reported in which galvanization alone was applied. In all these three cases the gastralgia was of an intense nature, and in two of them complicated with slight heart trouble. In all three cases the gastralgia disappeared.

i. e., the chemical analysis of the stomach contents showed an improvement of the condition. The references to these points will be found on the tables under the heading "Remarks."

After having discussed the main characteristics of the tables I would like to mention a few points in reference to the electric treatment. I gave to my patients the usual necessary drugs; a few only partook of no medicines whatever. I modified and prescribed diet only when necessary, and advised suitable hygienic measures accordingly.

I ordinarily applied the electrization every other day during the beginning of treatment; afterward—*i. e.*, after the lapse of two to three weeks—twice weekly for about three weeks, and thereafter once a week for some time. As a rule, I begin to decrease the frequency of the sittings when I notice a decided improvement in the condition of the patient. Even after a complete disappearance of the symptoms it is advisable to continue the electrization (once a week) for some time.

According to my belief, it is of importance to apply gastro-electrization upon a certain plan. Thus it will not appear superfluous to give a detailed description of the electric application I generally employ.

The patient, when having the deglutable electrode within

the stomach, opens his clothes, so that the abdomen is accessible. The key of the deglutible electrode is connected with the cord (negative pole) running to the battery.

Gastrofaradization.—Sitting, ten minutes; at first large plate electrode at the gastric and epigastric region for five minutes, then a small ordinary sponge electrode. The electrode is at first moved up and down from left to right in the gastric region (sometimes, principally when there is constipation, one goes with the electrode over the region of the colon—ascendens, transversum, and descendens—always beginning in the right iliac region and stopping at the left iliac region (duration, two minutes)); thereafter one proceeds from the gastric region from right to left to the back, and remains at the left side of the seventh dorsal vertebra for one minute. [At this place the current can be applied quite strongly, and most of the patients then experience a slight sensation within the stomach; the patients find it difficult to describe this sensation; some assert that they experience a dragging feeling, others a feeling of weight, and others again of pinching. All of them place this feeling within the stomach and locate it opposite different heights of the abdominal wall.] One then returns to the front, moving the electrode gently up and down over the gastric region for two minutes, gradually decreasing the current, and thus ends the sitting. The strength of the current has to be of such a nature that it causes distinct contractions of the abdominal walls; but it is not well to have the current so strong that the patient experiences pains.

Gastrogalvanization.—Negative pole within the stomach; small sponge electrode. Duration, eight minutes. First, two minutes below the ensiform process (during the first minute the current is gradually increased to its necessary strength); then for three minutes moving the electrode up and down the gastric region. After this, one then goes to the back and remains one minute at the left side of the seventh dorsal vertebra, returns to the front, moves the electrode around the gastric region for one minute, and remains then quietly for one minute below the ensiform process. During this time the current is gradually weakened and the sitting ended, the strength of the current being ordinarily fifteen to twenty milliamperes.

Before concluding this paper I should yet like to discuss a few points with regard to galvanization. I have already in my previous paper emphasized how effective this current is in gastralgia. Tables II and III seem to confirm this. The amelioration ordinarily appears by degrees and not suddenly. First, the pains are somewhat less severe, thereafter they begin to remain away for some time, and at the end they disappear completely. This gradual disappearance of the gastralgic pains seems to indicate that the beneficial effect must be ascribed to the galvanic current and not to mere suggestion.

Among the five cases of severe gastralgia, fully described in my previous article,* there were two with vitium cordis (cases Auguste K. and Th. G. H.). Among the eleven cases treated by galvanization, reported in this paper,

there are six with more or less distinct heart trouble. In all of them the galvanic current exerted a highly beneficial effect. Not only did the gastralgic pains disappear, but very frequently the heart action of the patient took a decided turn for the better. Thus, for instance, Patient Paul W. (Table III, 3), when beginning the galvanic treatment, had an accelerated and intermittent pulse; later on the same became normal as regards frequency and rhythm. Morris S. (Table II, 8) previous to treatment used frequently to suffer from fainting spells after meals; afterward these spells ceased.

It seems, therefore, that the galvanic treatment not only exerts a favorable influence upon the stomach, but that it has a tonic effect upon the heart. According to my opinion, it would be justifiable to give the galvanic treatment a trial in some affections of the heart, even if they are not complicated with gastric disorders. Perhaps they could be treated by the same method of galvanization—i. e., having the negative pole within the stomach. Under all circumstances, however, I would advise administering the galvanic current in every case of gastralgia complicated with affections of the heart.

As a *résumé* of this paper permit me to submit the following conclusions:

A. *Regarding Physiology.*—1. Direct gastrofaradization ordinarily increases gastric secretion, even during the first period after electrization.

2. The absorbent faculty of the stomach is considerably accelerated directly after the gastro-electrization (faradization and galvanization).

B. *Therapeutically.*—1. Direct gastro-electrization is a potent agent in the field of chronic (non-malignant) diseases of the stomach.

2. Gastrofaradization appears especially useful in most cases of dilatation of the stomach and enteroptosis; further, in atonic conditions of the cardia (ructus) and pylorus (presence of larger amounts of bile in the stomach), and in chronic gastric catarrh (gastritis chronica glandularis).

3. Gastrogalvanization is almost a sovereign means for combating severe and most obstinate gastralgias, no matter whether their origin is of a nervous nature or caused by a cicatrized ulcer of the stomach.

4. Gastrogalvanization exerts also a favorable influence on several affections of the heart complicated with gastralgia.

107 EAST SIXTY-FIFTH STREET.

THE CAUSATION OF INFLAMMATION.

A REVIEW.*

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IN surveying the works of ophthalmologists of recent years, it appeared to me that one, above all others, deserves the widest recognition and the most thoughtful attention.

* Read as the chairman's report of the Section in Ophthalmology, etc., before the Medical and Chirurgical Faculty of Maryland, April, 1893.

* *Loc. cit.*

The work I refer to is on *The Causation of Inflammation*, by Theodor Leber, professor of ophthalmology, formerly of Göttingen, now of Heidelberg.*

This work is the result of many years of labor. Portions of it have been published from time to time. Others besides Leber have been engaged at the same task. In this last published work the entire subject is reviewed and his results and those of others are considered in a thorough manner, known in German as *Kritik*. In my paper I shall not name the various authors, but confine myself to the report of some important facts and conclusions. Many of these are not new, but are familiar to pathologists; still their repetition may be of use. The experiments were made, for the most part, on the eyes of rabbits and other animals.

The eye possesses many advantages for observing the processes of inflammation. Its transparent media enable us to see the gradual and minute changes. Some of its tissues being non-vascular, reduces the complex processes of inflammation to the most simple terms. It has also been found that there is very slight danger of secondary infection after careful experiments on the eye.

The great work had its beginning in a very interesting and rare case. A countryman whose eye had been injured with chaff was attacked with suppurative keratitis. The necrotic corneal tissue was filled with a variety of *aspergillus* (*A. fumigatus*). Experiments showed that this fungus was capable of causing similar inflammation in the cornea of living rabbits, into which it was introduced.

These were the first experiments with pure cultures of fungi, and they proved that certain forms were capable of development in previously healthy animal tissues and of producing suppurative inflammation without the aid of bacteria. Further experiments proved that different fungi were very unlike in these properties or in the intensity of their action, some varieties being incapable of development at the body temperature, some finding the cornea and other tissues unsuitable soil. It has also been found that different organs are affected to a very varying extent by fungi injected into the blood-vessels, and that, moreover, different animals show greater or less predisposition to their action. Non-vascular tissues offer the best culture ground.

The introduction of pure cultures of *Aspergillus fumigatus* into the cornea is followed by keratitis manifesting itself the next day. There is some conjunctivitis, which gradually increases, and the corneal wound is slightly infiltrated. The infiltration, at first limited to the corneal wound, gradually increases in density and size, and the epithelial covering is lost. The peripheral part of the cornea becomes somewhat hazy. About this time (third or fourth day or later) a crescentic or circular infiltration rapidly appears around the primary lesion. This is opaque, sharply defined, especially on its inner border, narrow, and stationary. Its outer border passes over into the diffuse haziness of the periphery of the cornea. Between the circular infiltration and the central lesion there is a larger or

smaller area which at first is perfectly or almost clear. Later on the central infiltration increases and reaches the circular zone, and the epithelial layer within this area is lost.

In the mean time there is considerable exudation in the anterior chamber, beginning with a deposit upon the inner surface of the cornea beneath the primary infiltration, frequently similar to the circular corneal infiltration, but somewhat smaller, and a fibrinous deposit on the margin of the pupil and in the pupillary opening. On the anterior surface of the iris, especially below and at the bottom of the anterior chamber, there is a purifibrinous deposit.

The growth of the fungus is limited to the area inclosed in the circular zone, which acts as a line of demarcation; with few exceptions, the fungus did not enter the anterior chamber, Descemet's membrane offering too much resistance to its progress.

After five or six days the inflammation abated; at the same time there was a development of a vascular zone, spreading from the conjunctiva over the surface of the cornea and sometimes extending to the circular infiltration. The area within the circular zone, which has become purulent and softened, is thrown off either entire, causing perforation of the cornea, or partially in some milder cases, producing a deep ulcer, and this is followed by cicatrization.

If we now follow the fate of the fungi which were introduced into the corneal substance either in the form of spores or of a developed mycelium, we find that they rapidly grow through the corneal substance in all directions, without any relation to its structure, forming a mycelium especially dense at the border of the growth. The growth is, however, as already stated, always limited to the area inclosed by the circular infiltration.

The minute changes in the cornea are no less interesting than those visible to the naked eye. The first consist in a loss of the epithelium and the endothelium above and below the growth and a superficial infiltration of leucocytes under the margin of the epithelial defect—to a slight depth—and in the epithelial layer near the margin. Rarely are they found entering along the fungous threads or even surrounding them. The periphery of the cornea is infiltrated with leucocytes; they are densest at the edge of the cornea and gradually diminish toward the center. The circular infiltration likewise consists of leucocytes, which here are closely packed between the fibers of the corneal tissue. In this zone they are so closely placed that their edges can not be seen, but at the margin they appear drawn out and distorted in their efforts to enter the narrow spaces. At the inner edge of the zone the infiltration suddenly ceases and neither leucocytes nor even corneal corpuscles are to be seen within. The zone of infiltration usually pervades all the layers; sometimes it does not reach the deepest one, and then it is seen to become closer in the deeper layers and perhaps, forming a continuous layer, surround the central infiltration from behind.

Besides the infiltration of leucocytes, there is an exudation of fibrin into the conjunctival and subconjunctival tissue about the cornea and into the cornea to the circular infiltration.

* Die Entstehung der Entzündung und die Wirkung der Entzündungs-
erregenden Schädlichkeiten nach vorzugsweise am Auge. Angestellten
Untersuchungen von Dr. Theodor Leber. Leipzig, 1891.

There is also an abundant production of pus and fibrin in the aqueous humor. It is important to remember that this purulent collection in the anterior chamber is formed very early—long before the fungous growth has reached the deepest layers of the cornea.

The iris and ciliary body show some infiltration with leucocytes, mostly on the anterior surface of the iris (nearest the cornea), and especially prominent near the angle of the anterior chamber.

In the further course the fungi are found to cease growing and the central area becomes more and more infiltrated with pus corpuscles. In these areas the corneal structure disappears entirely, and even the fungi are destroyed. The subsequent steps were mentioned above. In the mildest cases, in which the spores did not germinate at all or only very late, the inflammatory symptoms were very much slighter, but they were always present. In these cases there was an abundant infiltration of leucocytes where the spores had been introduced, and these were either filled with spores or were spread along the course of the developed threads in the form of a cloak. In a short time the enveloped threads could not be found, having been destroyed by the leucocytes. The spores which did not germinate gradually disappeared. The reason for the great difference in their action from those described above lay in their retarded development.

I have described this form of inflammation so minutely because I shall have to revert to it, and I shall be able to avoid lengthy descriptions in other forms by referring to this.

In the anterior chamber the *Aspergillus fumigatus* produced violent inflammation, but it developed a mycelium only in the membrane of Descemet of the cornea and in the anterior capsule of the lens. In the latter situation it produced no evident inflammatory reaction within the lens; the only change consisted in necrosis of the lenticular epithelial cells. The growths on the cornea produced a dense infiltration of leucocytes in the deep layers of the cornea corresponding to the part of Descemet's membrane affected. There was absolutely no growth of the fungus on the iris. This was covered with a thick layer of fibrinous exudation. In other words, the fact may be stated that the fungus develops in non-vascular tissues, but that it can not grow on those that are vascular. In the vitreous there was abundant development of the growth with violent symptoms of inflammation; the purulent infiltration extended to the retina and even into the anterior chamber. As in the cases of corneal infection, it was seen that the effects went far beyond the limits of the growth itself.

Leaving the class of the fungi and passing over to certain bacteria, we find that the introduction of pure cultures into the cornea produces symptoms very similar to those described above, due to the aspergillus, and that they also are capable of development in this soil. The early appearance of purulent exudation in the anterior chamber, besides other signs, shows that bacterial inflammation also spreads beyond the area occupied by the bacteria. It is especially interesting to note that this purulent collection, known as *hypopyon*, is free from germs, and is therefore due only indirectly to their presence in the cornea. It is

also important to learn that the leucocytes forming the collection are not derived from the corneal infiltration at all, as is usually believed, but from the neighboring vascular parts—the iris and ciliary body. The consideration of the changes constituting the foregoing forms of inflammation has shown that within a definite area around the growths there is necrosis of the tissue elements, and that beyond this there is infiltration with leucocytes.

In the corneal inflammations it was seen that the infiltration was twofold: firstly, slight infiltration beginning in the wound, and, secondly, an intense infiltration in the form of a limiting circle. Both depend upon the migration of leucocytes into the cornea, the former being derived from the contents of the conjunctival sac, the latter from the vascular tissues surrounding the cornea. In cases of slowly growing fungi the central infiltration may exist alone and become so great as to surround the separate threads of the growth in the form of a mantle.

The only explanation for the extensive action of micro-organisms is, that they produce by their growth certain soluble, diffusible, and poisonous substances, which in more concentrated forms produce necrosis of the tissue where they are formed, and which, reaching the neighboring blood-vessels in more diluted amounts and acting upon them, cause inflammatory hyperæmia, exudation, and emigration of leucocytes.

It was evident that the leucocytes were attracted toward the seat of the micro-organisms. In the cornea this was very apparent in the area between the periphery and the circular zone of infiltration. The reason that they proceeded no further than the circular band of infiltration—indeed, the reason that this band was formed—lay in the fact that here the concentration of the poison became too great and paralyzed them.

In these experiments the question arises as to what prevents the growth and the continued spread of the organisms. It was found under certain circumstances, especially when the inflammatory action was slight, that micrococci and spores found their way into the interior of the leucocytes. This is due to a process known as *phagocytosis*—the taking up by leucocytes of small particles into their interior. How much this process interferes with the progress of the micro-organisms can not be stated, but it is probable that it is not important. Perhaps the reason lies in some property of the inflammatory exudate that is detrimental to their growth.

It is to the leucocytes that the most important work must be ascribed—namely, that of forming the line of demarcation and of separating the necrotic portion and causing it to be thrown off.

The experiments on the effects of the introduction of micro-organisms into various parts of the eye were followed by another series to determine the results of the introduction of their chemical extracts. Extracts of fungi, even of some which in themselves are incapable of producing any considerable inflammation, cause necrosis of a larger or smaller area of tissue and purulent infiltration beyond it. The same can be said of extracts of putrefied substances. The inflammation in these cases is similar to that produced by living organisms, but is less intense, owing to the

fact that but small quantities could be introduced, that they were rapidly absorbed, and that they were not reproduced as they are when the living organisms lie in the tissues. Injections of boiled *Staphylococcus aureus* into the anterior chamber are followed by the most intense inflammation. But the course differs markedly from that produced by similar injections of the living organisms. The latter is a progressive inflammation which gradually destroys the whole eyeball. The former intense inflammation subsides after a certain time and ends in complete healing. Whenever the amount of injected material was sufficient, the inflammation was accompanied by the rapid production of a large perforation of the sclerotic coat at the angle of the anterior chamber. This was due, it is believed, to the constant filtration through the angle of the anterior chamber and the consequently greater action of the poison at this part. There was a large amount of puriform exudation in the anterior chamber, often filling the entire cavity, but hypopyon was found only in the most severe cases. (In these cases, too, the entire cornea became anæsthetic.) And yet, as stated above, this condition would pass away with absorption of all or of most of the exudation, and finally even a return of the transparency of the cornea. (This was preceded by vascularization of its periphery and a subsequent disappearance of the blood-vessels.)

The separation of the active chemical substance in solution from the boiled micrococci was a very difficult problem, but was finally solved. From the solution the dried crystalline substance was at last obtained. It is known as *phlogosin*. This substance causes necrosis and intense inflammation even of the uninjured conjunctiva. Introduced into the anterior chamber, it produced the most violent inflammation within a few hours, extending to the conjunctiva and even the eyelids.

Accepting the fact that the inflammatory action of micro-organisms depends upon chemical substances which they produce, the next question that arises is whether other chemical substances have like properties. It is not long since it was denied that chemical substances could produce suppurative inflammation. This was based upon the results of injections of certain substances, such as croton oil, which in most cases produced inflammatory œdema and exudation of fibrin only; though I wish to mention here that our former fellow-townsmen, Professor Councilman, had shown that under proper conditions sterilized croton oil would produce suppuration. Furthermore, we must bear in mind that there is no essential difference between suppurative and non-suppurative inflammation. In both there is emigration of leucocytes, and suppuration depends only upon its degree.

Among the many chemical substances examined were various metals, such as iron, copper, mercury, lead, silver, gold; besides these there were glass, carbon, arsenious acid, etc., of inorganic substances, and organic substances, such as croton oil, oil of turpentine, cantharidin, jequirity, indigo, uric acid, etc., and finally oil, starch, and parts of animal tissues. These were introduced into the anterior chamber (either directly or inserted in minute glass

tubes, open at one end), into the vitreous, and into the cornea.

In all cases it was shown that the substances were pure and free from bacteria, and the eyes were afterward examined carefully to determine that no subsequent infection had occurred. Each substance seemed to act in a manner peculiar to itself. But all caused greater or less inflammation. It is impossible to give even an abstract of all these experiments. I shall confine myself to the results obtained in a very few, which will serve as examples, and to the general conclusions.

The introduction of sterile mercury was followed by suppurative exudation without considerable inflammatory reaction. I need scarcely repeat that in all experiments there were numerous examinations, which showed that there was no infection. About twelve hours after a drop of mercury was injected into the anterior chamber it was covered with pus. The purulent collection gradually increased. The cornea later on became vascular in that part where the purulent mass lay against it. Finally the cornea became purulent and softened at some point; perforation would occur, and the anterior chamber would be emptied of its contents. Then recovery took place. Injected into the cornea in fine globules, it was found to produce severe inflammatory reaction. The globules were surrounded by a purulent deposit, and in one case where the drop was larger there was a distinct circular infiltration.

Bits of sterilized copper introduced into the anterior chamber acted in a similar manner. Suppuration began in about fifteen hours; but this involved only the part occupied by the foreign body. The rest of the iris was apparently normal. In a few days the collection of pus would reach the upper margin of the pupil. There was vascularization of the cornea, which finally covered the part over the purulent collection. If the anterior chamber was emptied, the symptoms would rapidly subside and recovery would take place. If not, there would be spontaneous diminution of the inflammation. The purulent collection would decrease. The corneal and conjunctival congestion would disappear, but the foreign body would usually work its way gradually out through the cornea. Copper acted in a very curious way when introduced partly into the lens so as not to be in contact with the vascular iris. In this case it produced very slight reaction. It was subsequently found that the action of copper was violent only when in contact with vascular tissue.

As an example of another mode of action let me refer to the experiments with arsenious acid. This produced extensive necrosis, but only slight suppurative reaction, and this at quite a distance from the seat of operation. Gradually as the acid became absorbed the infiltration came nearer. It was evident that the substance acted in a poisonous manner upon leucocytes even at a great distance. Introduced into the anterior chamber, it was seen almost unchanged for several days, without any infiltration or scarcely any fibrinous exudation in its neighborhood. After several days only was there beginning suppurative exudation, and this occurred on the opposite side of the iris at the most distant point; later on there was exudation nearer the body.

In order to show the action of what are considered inert

substances let me mention that of gold. In the anterior chamber pieces of gold produced no effect visible to the naked eye; but even after a few weeks the microscopic examination revealed proliferation of the endothelium, the formation of giant cells, and emigration of leucocytes. In the vitreous the effects were still more evident.

Having demonstrated that the above chemical substances, both the active and those otherwise considered inert, produce inflammation of different degrees and of different kinds, we are led to inquire in what manner and by what means this is accomplished. As in the case of inflammation due to micro-organisms, it was found that these substances showed effects through a much larger space than that they occupied—in other words, that they acted at a distance. This forces us to the conclusion that they must become partly dissolved in the animal fluids, and pass by diffusion to the neighboring parts. This could be directly proved in certain cases, as, for instance, with copper; it was demonstrated that neighboring tissues contained traces of this metal. Substances which are usually considered insoluble—such as gold, silver, glass—likewise show distant action, and the conclusion stated before can not be denied. They must be soluble to a very slight degree, and, furthermore, very small quantities of these solutions must suffice to produce inflammation. Solutions of mercury, copper, or lead salts are very poisonous, while iron is found as a normal ingredient in the animal body. The first metals named are very slightly soluble in the animal fluids, while the latter is much more easily soluble. It is therefore very interesting to observe that the former excite considerable inflammation while the latter is almost harmless.

Oily substances which are insoluble in water are partly emulsified and are carried to neighboring parts in the form of fine particles. Whether in the form of an emulsion or of a solution, the above substances produce necrosis in their neighborhood and inflammatory reaction beyond by acting as irritants to the tissue elements. Substances which produce great inflammatory reaction must therefore be considered as cell poisons, which in weak concentration act as the excitants of inflammation.

Very inert substances act as excitants only and cause processes which lead to their elimination or encapsulation. It is conceivable that the various substances act in a different manner, and that this accounts for the differences in the forms of the inflammation produced.

A most interesting series of experiments consisted in the introduction of finely powdered substances into the anterior chamber and vitreous. They were either injected or placed in minute glass tubes and thus inserted. Among the substances experimented with were gold, platinum, cinnabar, sulphate of barium, and pure powdered carbon. In all the cases there was greater or less emigration of leucocytes from a distance, and the fine particles were partly taken up into their interior. There was also increased exudation of fibrin.

It is not conceivable that these substances acted purely in a mechanical way, for their action did not confine itself to their immediate neighborhood. Furthermore, the little tubes which contained these substances became filled to a greater or less extent with pus cells, while empty tubes pro-

duced but the slightest reaction. The action of the powdered substances, as in the case of gold, was much more intense than that of the solid pieces.

Leber holds that here too we must consider it a chemical action, and that these substances are not absolutely insoluble; and also that their solubility is increased by being in the form of powder, which has an infinitely greater surface exposed than the solid substances. The greatest difficulty which this view encounters is in the case of pure carbon; Leber is unable to give any hypothesis for its solubility. I would venture the hypothesis that the surface attraction of this substance may account for its action.

Leber's work offers further strong proof of the truth of Cohnheim's theory, that pus cells are derived by emigration from neighboring vessels. I can not refrain from citing certain experiments which bear strongly on this point, and show conclusively that the tissue cells are of secondary importance in the formation of pus. He introduced dead sterile corneas into the abdomen of rabbits. Some of these corneas were first injected with small amounts of sterile putrefactive fluid, just, as mentioned above, had been done with living eyes. Those that contained this inflammation-producing fluid showed the same characteristic forms of purulent infiltration when taken out of the abdomen as described above—slight infiltration at the seat of injection and a ring of infiltration at a definite distance from it. The non-injected dead corneas when taken out of the rabbit's belly showed but slight general infiltration, as would have been expected, for these also act as foreign bodies. The experiment was made additionally instructive by the fact that most pus cells of the circular infiltration contained pigment granules which were derived from the narrow pigment zone found around the cornea, which had been taken up in their course through this part. The pus cells of the central infiltration were entirely free, and this showed that they had come from without directly into this part without traversing the periphery.

According to Leber, the same attraction which brings leucocytes from a distance causes them to surround the fine particles and to take them into their interior, the process mentioned above as *phagocytosis*. In this action various powdered substances are not at all equal. The whole process by which the leucocytes are attracted through chemical irritation he terms *chemotaxis*.

THE PREVENTION OF SEPSIS IN THE PRACTICE OF MIDWIFERY.*

BY FRANCIS M. BANTA, M. D.

THAT to which I desire to call your attention is a few suggestions relative to the prevention of sepsis in the practice of midwifery, and especially the midwifery of private practice, the conditions as found in the hospital being so widely different as practically to call for separate consideration.

* Read at the bimonthly meeting of the Alumni Association of the Medical Staff of the Northern Dispensary, May 17, 1893.

In a large maternity hospital the rules are formulated and printed; the doctors, nurses, and assistants, who are obliged to conform to them, are educated, skillful, and scrupulously cleanly. The following are a few of the rules and methods of treatment now in use at the Sloane Maternity Hospital, an institution that of its first thousand patients lost one through sepsis, and there is reason to believe that she was infected before entering the hospital. The details of the aseptic and antiseptic measures there employed are quoted at some length from the report of Dr. McLane, because, while admirable and instructive in themselves, they may be taken as representing with small changes those employed in most of the large lying-in hospitals at the present day:

In this institution "the bath rooms, sinks, and water-closets are removed as far as possible from the wards and special delivery rooms. Patients awaiting confinement are separated from the puerperal women. Each patient on entering the hospital is obliged to take a full bath under the supervision of a nurse, plenty of soap being used, and special attention given to the hair, which is thoroughly shampooed with larkspur or ether or both, or, if very dirty, with bichloride solution. A vaginal douche of bichloride (1 to 5,000) is given and a rectal enema of soapsuds. The woman is then attired in clean clothes, the property of the hospital, her own garments being placed in a bath and subjected to a heat of 250° F. in a small room specially designed for the purpose, and afterward stored in a locker in the basement. The lying-in wards are used in rotation, and after being occupied by four patients are thoroughly cleaned, the furniture washed with a solution of carbolic acid, and left unoccupied with open windows for several days. Special delivery rooms are employed, situated conveniently to the wards. Each room is provided with a table of special design, upon which all deliveries take place. The bedding is protected by water-proof paper, which has been found an excellent substitute for the ordinary India-rubber sheet. Fountain syringes are employed to give injections; the glass nozzles attached to the soft-rubber tubing when not in use are kept in jars containing a solution of bichloride. When a patient is taken in labor she is transferred from the waiting ward to the delivery room, where a vaginal douche and rectal enema are given early in the first stage.

"Chloroform is given when necessary in the latter part of the second stage—to the obstetrical, not the surgical degree. The placenta is expressed by the Credé method at the end of fifteen minutes, one drachm of the fluid extract of ergot then administered, a vaginal douche of three pints of bichloride solution (1 to 5,000) of a temperature of 116° F. given, and the uterus held for one hour after delivery, when, if well contracted, the binder is applied, the patient placed upon another table, which is provided with wheels, and removed to the ward where she is to remain during the puerperium. The perineum, if torn to any extent, is sutured at once with silk-worm gut. The intra-uterine douche is only given in cases of instrumental delivery or where the hand has been introduced.

"The entrance to the genital canal is closed by an antiseptic pad, twenty-eight inches long and eight inches wide,

made of gauze and filled with absorbent cotton. On the first day these pads are changed every four hours, on subsequent days once in eight hours, the pads being somewhat smaller as the lochial discharge diminishes in quantity. No visitors are allowed in the wards. Patients and nurses wear only clothes that can be washed, and the physicians sack coats of white duck. All soiled articles of clothing and bedding are put in bags and at once sent to the laundry in the basement by means of a copper chute, the opening being in the hall near the wards and covered by a small iron door. Physicians and nurses exercise the most scrupulous care in regard to personal cleanliness and disinfection. Before making a vaginal examination the hands are scrubbed and a nail brush is used; they are then immersed in alcohol and afterward in a solution of bichloride (1 to 2,000). Alboline kept underneath a bichloride solution is used as an emollient. No sponges are allowed in the hospital, being replaced by absorbent cotton."

How different are the circumstances under which the general practitioner is called upon to treat a case of midwifery! From the first he is often confronted with such a mass of uncleanness, ignorance, and incompetency on the part of nurse, relatives, and patients as to make his efforts in combating sepsis a wearisome task.

The nurse, who is often a relative, seems in many instances to be chosen for the office because of the number of children she has borne, and frequently performs the house work in connection with her nursing duties. Often she is a veritable Mrs. Gamp, and, like her, possesses "rules and regulations" of her own, "which" (as she expresses it) "can not be broke through." The directions of the physician seem to her like so many efforts on his part to add to her already long list of duties, and they are either openly or furtively disobeyed or only obeyed in part. To insist upon even personal cleanliness of patient and nurse is too often a signal for open rebellion.

The room is generally the smallest, darkest, and most uncleanly of those occupied by the family, seldom large enough to permit of approaching the bed excepting from one side, and suspended from its walls is a motley assortment of clothing in various stages of disintegration; the bed, often an ancient structure and the scene of many a confinement, will not permit of being moved about, and is covered with old rags, carpet, and blankets.

The patient, if she is a primipara, is traveling an unknown path in a strange country, and in the first stage of labor is usually found in a mental condition that makes her oblivious to everything save her pains. She has engaged her physician and nurse, and there she considers her responsibility ends. Bichloride or carbolic-acid solutions, an adequate supply of clean linen, absorbent cotton pads, toweling, or even soap and water are sometimes difficult to obtain, and if the subject has not been discussed previously, and precautions taken to procure the articles required before labor pains have commenced, it is often-times too late to secure them afterward.

The foregoing is briefly what is frequently encountered by most of us who practice midwifery in this city, especially among those who live in the tenements. These were the cir-

circumstances under which many of the patients were born, and the mother or aunt, who too often acts as chief counselor, is only reproducing that which was found sufficient preparation in her own labors.

What is needed among these people is a more thorough appreciation of the necessity of making the proper preparation for what should be regarded as a surgical case. No time should be lost by the physician retained in a case of midwifery in visiting the patient's residence and acquainting himself with the character of her surroundings. A written list of the articles she is required to furnish should be given her.

The lying-in room should be the largest, pleasantest, and best ventilated of those at the disposal of the family. Provision should also be made for light, no unimportant matter when it comes to stitching the ruptured surfaces of a perinæum. All superfluous hangings and furniture should be removed. The walls and woodwork should be well cleaned, the carpet removed, and the room well aired, especially during the week preceding confinement.

The bed should be cleansed and placed in a position to make it accessible from all sides. If possible, have a cot prepared especially for the confinement, from which the woman can be removed to her bed at the end of labor. In any case, arrange for a clean bed, and, what is equally important, arrange to have it kept so. This is not to be accomplished without a certain amount of systematic care and vigilance on the part of both nurse and physician. To secure this, no complicated or expensive apparatus is required. For a number of years I have used with much satisfaction absorbent pads, composed of sheet cotton, quilted thickly between layers of cheese cloth. These may be sterilized and covered with antiseptic gauze. When soiled, they should be burned immediately. They are inexpensive, much cheaper than the rubber obstetrical pads recommended by Kelly, nearly saving their cost in laundry work, and doing away with the miscellaneous collection of old rags, carpets, and oilcloth so frequently met with.

The nurse should be the best that can be procured. Of course, trained nurses are to be preferred, but they are not always available. Their wages are too high for the poor of the tenements, and the restricted space and other conditions under which these people often live are scarcely such as to tempt a modest and cleanly woman to take up her abode among them. In any case the woman chosen as nurse should be seen previous to the confinement, her references examined, and her qualifications ascertained. When it is considered that upon their strict obedience and cleanliness depends, in a great measure, the safety of the patient and the reputation of the physician, we can not be too careful in securing the best material possible to assist us. It would be well if physicians practicing midwifery among the tenements were to secure a list of names of a number of women who, for a modest consideration, would be willing to act as nurses in confinement. They would gradually become acquainted with his methods and with the importance of observing the precautions to be taken against the occurrence of sepsis, and serve generally as valuable coadjutors.

At the onset of labor give an enema to empty the lower bowel, wash the external genitals thoroughly with soap and water, and then bathe in an antiseptic solution. Whether or not to use a vaginal disinfectant douche before delivery is still a mooted question. There can be no doubt, however, that frequent and strong douches have an injurious effect upon the vaginal epithelium; also that the cases of toxic enteritis reported by Frankel, Peabody, Garrigues, and others have owed their origin to the strong bichloride solutions employed.

They may be classed as meddlesome midwifery. Lately Garrigues has suggested creolin as a substitute for corrosive sublimate in vaginal and intra-uterine douches. It is used in a half-per-cent. and a one-per-cent. strength, and is supposed to combine the three valuable qualities of being a lubricant, an antiseptic, and a hæmostatic, besides being innocuous, even if used internally in large doses.

After the child is born, no vaginal or intra-uterine douches should be given excepting in cases requiring the introduction of the hand or of an instrument into the vagina or uterus. As few as possible vaginal examinations should be made. Recently Crédé, Winckel, and others have urged that they should not be made in ordinary cases, and that we should rely for our knowledge of the progress of labor on abdominal palpation and the patient's groans.

This I believe to be an extreme precaution, and if the other details for the prevention of infection are used it is believed to be unnecessary.

After the birth of the child the placenta should be expressed by the Crédé method. This procedure has stood the test of time. It seems to be based on sound physiological principles, and holds a place in the system of the most successful of the lying-in institutions of the world.

Lusk describes it as "consisting essentially in applying, at first, light, and afterward stronger friction to the fundus of the uterus until an energetic contraction is obtained; at its height the uterus is grasped so that the fundus rests in the palm of the hand, with the fingers to the front."

Although this procedure is theoretically a very popular one, in practice I do not believe it to be employed as frequently as it should be. To grasp the uterus immediately after the birth of the child and to make powerful and unremitting pressure downward, as I have often witnessed, is not the Crédé method.

When it is properly performed, retention of the placenta is a rare occurrence; and if a safe degree of contraction is maintained for an hour longer we shall guard against hæmorrhage and the formation of clots, and diminish the severity of the multipara's after-pains. What is equally important, we shall prevent one of the most common sources of infection—retained clots, placenta, or membranes.

On pressure being removed from the uterus, remove the soiled absorbent pad, wash the external parts with bichloride solution, and repair any laceration of the vulva or perinæum that requires it.

As to the advisability of applying an occlusion dressing, opinion seems to be pretty evenly divided. That it is not

a necessity is shown from the results obtained in large lying-in hospitals, such as that at Vienna, which are as good as any. It is, however, received well by the patients, may have a favorable effect where other precautions in regard to cleanliness have been neglected, is a deodorizer, and is well adapted for use among the poor by excluding dirt that might otherwise enter the genital canal from the surrounding bedclothes.

The physician in attendance should observe the most scrupulous cleanliness as to hands, finger nails, clothing, and instruments. Before making vaginal examinations the hands and finger nails should be well washed and scrubbed with soap and water, then dipped in alcohol, and afterward in a solution of bichloride. All instruments used should be boiled and afterward placed in a solution of carbolic acid (1 to 20), or of creolin if preferred. Care should be exercised that the nozzles of syringes and the catheters and sutures employed are aseptic. In passing the catheter, see that no mucus is conveyed from the vulva into the bladder. This is only to be accomplished by thoroughly exposing the parts, cleansing the meatus with absorbent cotton, and dipping the catheter in bichloride solution before using it.

I have attempted to present a brief statement of a few of the difficulties and disadvantages under which the practitioner labors who attempts asepsis and antiseptis in the midwifery of private practice, and to make a few suggestions relating thereto.

Now and again we meet with those who tell us of a large experience in confinements without an instance of death from puerperal septicæmia, and this without employing any of the precautions detailed above.

In answer to them I have this to say: Fatality from sepsis is only one of its results. There is a long list of other consequences which follow, scarcely less to be dreaded than death, resulting in chronic invalidism and indescribable misery. Ask the pain-stricken women who apply to our hospitals and clinics for relief, How long have you suffered? How frequently it dates from a miscarriage or confinement!

I believe that much of this misery could have been prevented, and through the very methods detailed here; that those who neglect these precautions in the light of our present knowledge are recreant to their trust and duty, and that the day is not far distant when they can be held for malpractice.

Though the phenomena of normal labor are to a great extent physiological, yet there occurs in every labor more or less of the pathological.

As a recent writer has expressed it, "a woman during or after labor is a wounded woman."

50 JANE STREET.

An Honorary Degree.—The University of Alabama has conferred the honorary degree of master of arts on Dr. James K. Crook, of New York.

Harvard University.—It is reported that Dr. Henry W. Williams, the ophthalmologist, has announced his intention of giving the sum of \$26,000 for the endowment of a professorship of ophthalmology.

THE CAUSE AND TREATMENT OF MANY CASES OF VERTIGO, HEADACHE, AND OTHER NERVOUS DISORDERS.*

By F. C. HEATH, A. M., M. D.,
INDIANAPOLIS, IND.

The general practitioner meets with many obscure and puzzling cases, and nowhere more frequently than in the domain of nervous disorders. Scientific and satisfactory treatment of such cases requires careful investigation of their causation. The neurologist, gynecologist, oculist, aurist, rhinologist, and rectal specialist seek to aid him with records and explanations of reflexes from diseases in their special lines, sometimes perhaps a little overdrawn, but all containing at least a nucleus of truth.

Careful and honest observers will doubtless admit that there is no more frequent source of these reflexes than eye troubles, and it is this phase of the subject that I wish to consider with you briefly, in as plain a manner as possible and with careful avoidance of the technicalities of the specialist. Headaches and other nervous disorders due to errors of refraction (especially hyperopia or "farsightedness," and astigmatism or unequal refraction in different meridians) have been brought before the profession so fully and frequently that I will not now dwell upon this side of the subject further than to express the opinion that here is the source of by far the greater number of frontal headaches and sick headaches, besides a large share of attacks of dizziness and other functional nervous troubles.

But we must look to the muscles moving the eyeball for many cases, and here we enter a field of much uncertainty and disagreement. Roosa and Bull represent one extreme, teaching that the muscles should be let alone, while Stevens, the oculist, and Ranney, the neurologist, find nearly all nervous reflexes in cases of insufficiency of one or more of the eye muscles. The truth probably lies between these extremes, as the great majority of the better class of oculists and neurologists hold to day.

The symptoms arising from this form of eye strain are headache, especially in the *back of the head* and sometimes extending down the neck to the shoulder, less frequently temporal and frontal, sick headache, constant headache, crawling sensations, feeling of pressure or tight band across forehead or vertex; loss of power of attention, concentration, or self-control; indefinite fear, *dizziness*, amounting at times to *vertigo*, confusion of vision, letters chasing each other, tendency to nausea; numbness in fingers and arms, insomnia, nervous prostration, symptoms of hysteria or hypochondria, and (according to some authorities) epilepsy, chorea, melancholia, and other forms of insanity.

The production of these symptoms is accounted for in this way: Nature strives to make us see one object when looking with both eyes. To accomplish this, both eyes must *fix* the object—*i. e.*, the visual lines (drawn from the macula or point of most acute vision through the center of rotation of each eye) must be directed to the object—otherwise there will be double vision, as any one can easily prove to his own

* Read before the State Medical Society of Indiana, May 12, 1893.

satisfaction by pressing lightly over one lid while looking at anything steadily. These visual lines are practically parallel when looking at distant objects, but become more and more convergent as the object approaches the eye. It will thus be seen that the position of our visual lines is constantly changing, and that these changes require frequent action of the six muscles upon the outside of each eyeball. While these are so well balanced normally that the adjustments are easily made, whenever any muscle is relatively weak, it requires a special effort to fix the eye properly and muscular eyestrain is likely to be developed—so much extra nerve force being consumed that the patient suffers from one or more of the reflexes named. In neurotic subjects slight insufficiencies may produce annoying symptoms, and the extreme cases reported are probably confined to this class of unfortunate beings, many of whom must be content with nothing better than partial relief of troubles, even with the best skill attainable.

It has been suggested that some of these disorders are not reflexes, but the result of central lesions produced by constant peripheral irritation, and this *might* furnish an explanation why the removal of the original cause (the muscular insufficiency) may fail to cure the disorder.

There are several ways of detecting this insufficiency or weakness of the eye muscles, and I usually employ more than one to be doubly certain of obtaining a correct result. I will mention but one, the simplest, easiest, and least painful to the patient—viz., the Maddox rod test. Holding this rod vertically before one eye and looking at a light, you will see a horizontal streak of light with this eye and the flame with the other; if the rod be held horizontally, the light streak will be perpendicular. When the muscles are in equilibrium the streak passes through the middle of the flame, but in weakness of one of the vertical muscles the horizontal streak will be above or below the center of the flame. In weakness of either of the lateral muscles the perpendicular streak will be to the right or left of the flame. The degree is shown by the number of the prism required to cause the streak to pass through the flame.

The treatment of muscular insufficiencies and the reflexes arising from them consists in—

I. Promoting the general vigor and removing all unfavorable complications. This includes judicious exercise, proper diet, sufficient sleep, rest from overwork, general tonics, etc., with special attention to the nervous system and upper air passages.

II. Special treatment for the eyes.

1. Correct error of refraction, if any.
2. Strengthen the weak muscle by systematic exercise with prisms or limited and regular periods of reading with stereoscope or abducting prisms, or
3. Aid the weak muscle by prisms (or decentered lenses) to be worn either constantly or for near work only.
4. Rest for overtaxed eyes and eye muscles, in some cases even enforced rest by the prolonged use of atropine and dark glasses.
5. A progressive course of strychnine, if muscles supplied by third nerve are involved; use of *cannabis indica*, *belladonna*, bromides, antipyrine, etc., if the weakness be

in the external recti, supplied by the sixth nerve. Galvanism may be tried in either class of cases. We may also add the local use (in the eyes) of eserine or pilocarpine in cases of the first class, of atropine and other mydriatics in those of the second, while both are relieved by douching or spraying the eyes with cold water or mild lotions and applying stimulating liniments to the forehead and temples.

6. Operative treatment—either partial or graduated tenotomies of the stronger muscles (method of Stevens and Ranney), or, what seems more scientific, a complete tenotomy, regulating the effect by a suture (method of Noyes, Webster, Thompson, and the better men generally). Sometimes advancement of the weaker muscle may be tried.

I desire to enter a plea for conservative treatment in these cases, giving a few reasons and citing a few cases from which some lessons may be learned.

I. The eye muscles are not stable, varying in power from day to day.

Their strength depends largely upon the general condition, amount of exercise, fatigue, hours of sleep, sexual habits, refractive error and its correction, etc. To illustrate, one of my cases showed, February 10th, half a degree of vertical error, half a degree of weakness of external recti; February 18th, no vertical error, but half a degree of weakness of internal recti; March 6th, equilibrium. Another, February 14th, two degrees of insufficiency of internal recti; March 2d, half a degree of the same. A third, January 9th, one degree of vertical error and one degree of external; February 9th, none at all. A fourth, December 14th, two degrees of insufficiency of internal recti; February 11th, equilibrium; March 18th, half a degree of insufficiency of external recti.

Snipping the muscles might have done much harm here, perhaps producing some of the very troubles said to be due to muscular insufficiencies.

II. It is difficult, if not impossible, to regulate the effect of an operation. We may get too much or too little, sometimes none at all. Roosa refers to patients having double vision produced by tenotomies. Davis shows that, in the only one of Ranney's cases fully recorded, the muscles show the same strength some weeks subsequent to the operation as before, and thinks that probably true of the others, which result is at least a very disappointing return for the trouble and expense incurred. We should expect nothing more from graduated or partial tenotomies except occasional relief of spasm.*

III. The effect of the refractive errors must first be thoroughly understood.

An error of refraction being often the cause of a muscular insufficiency, correction of the former frequently relieves the symptoms due to the latter, as the following cases from my records show:

* Since writing the above an able article has appeared on this subject in the *New York Medical Journal*, April 15, 1893, by Dr. F. W. Marlow, of Syracuse, who is the first and only one (I think) to show that ocular muscles are sometimes weaker months after a partial tenotomy; but his mode of operating is different from that of Stevens and Ranney, and far more rational.

CASE I.—J. C. D., a sufferer from headache. Examination revealed astigmatism and insufficiency of internal recti. Corrected astigmatism only. After two months reports perfect relief.

CASE II.—Miss M. W., Lebanon. Pain in back of head, etc. Found 1 D. hyperopia under atropine and insufficiency of internal recti. Corrected one half the hyperopia only. After two months she writes: "Eyes growing stronger; no pains in back of head."

CASE III.—Miss M. B., bookkeeper. Slight dizziness, pains through temples, less often frontal and occipital. External recti weak, also right inferior rectus. A low degree of astigmatism. Corrected latter with perfect relief.

The presumption in these cases is that the muscular insufficiencies disappeared after correcting the errors of refraction, but, owing to the impossibility of getting another examination at the time relief was reported, this can not be proved. The following cases, however, show that symptoms usually attributed to the muscles must be due sometimes to the refractive trouble solely, the glasses correcting the hyperopia and astigmatism having caused disappearance of symptoms while the muscular insufficiency remained about the same:

CASE IV.—Miss H., attending Insane Hospital. Complained of dizziness and neuralgia in the eyes, temples, and back of head. Found and corrected astigmatism as follows: R. E. + 1.50 D. ax. 100° ; L. E. + 1.50 D. ax. 80° . Insufficiency of vertical muscles half a degree, and of internal recti two degrees for distance and eight degrees for near work, were found but not corrected. At last report, four months later, the dizziness and neuralgia had disappeared, but the insufficiency remained the same.

CASE V.—T. R., schoolboy. Constant headache, frequent dizziness, etc. Found hyperopia and insufficiency of internal recti. Corrected the former with marked improvement, the insufficiency remaining unchanged.

IV. It is practically impossible to be certain of the diagnosis in some cases.

What seems to be the relation of cause and effect between an insufficiency and certain symptoms may prove to be only a coincidence, as the following case well illustrates:

CASE VI.—Dr. F., for whom I had prescribed glasses correcting his slight hyperopia, presbyopia, and astigmatism six months before, appeared in January with vertigo or dizziness, difficulty in concentration of mind, etc.—the very picture of muscular insufficiency, as given in the writings of Seguin, Hotz, and others. Examination showed one degree of vertical insufficiency, half a degree of external recti. Prisms were added to glasses worn, half a degree base down right eye, half a degree base up left eye. They failed to relieve. After one month's use, equilibrium of muscles was found, with no relief of symptoms, showing that the symptoms were not a reflex from muscular insufficiency. Attention was next given to his ears as a possible source of the dizziness, but the symptoms continued after removal of cerumen and recovery from an otitis externa of right ear. A functional heart trouble has since been determined upon (partly by exclusion) as the probable cause of the dizziness. How grave an error would a tenotomy of the ocular muscles have been in this case!

V. Somewhat akin to the preceding is the difficulty of differentiating between cause and effect in some cases of

nervous prostration, especially with insufficiency of one or more eye muscles, since we have found that the latter may develop after the onset of the former or may give rise to it.

VI. The good results reported by operators are often due to other things than the operation. Glasses are prescribed in nearly all of the cases, and it is not unreasonable to suppose that they are entitled to credit for a large share of the benefits reported. In some other cases it may be merely *suggestion*, as Davis shows of one of Ranney's cases—undoubtedly a case of hysteria. The miraculous results here are about on a par with those of Christian scientists and clairvoyants in the same line.

VII. Some patients are neurotic by birth, as Roosa says, and will never get anything but palliation. Cure of such cases is out of the question. Having recognized cases as almost certainly of this class, radical treatment is hardly justifiable.

VIII. Some cases show weakness of all the muscles. Obviously operation here is not to be thought of.

IX (and lastly). Simple measures relieve the majority of cases.

We have seen the good results of correcting the errors of refraction. A recent case of mine was much benefited by taking a ten days' hunting trip. Cases VII, VIII, and IX show the results of prisms worn for near work only.

CASE VII.—F. L. C., Earlham College student. Headache, eyestrain, and inability to study. Refraction apparently normal, insufficiency of internal recti. Ordered prisms one degree, base in, for each eye for near work. Three months later reported perfect relief.

CASE VIII.—W. T., medical student. Subject to "bilious headache." Head and eyes feel bad after much reading, also after going to theater, etc. No apparent refractive error, but two degrees of insufficiency of internal recti for distance and five degrees for near point. Ordered for reading prisms two degrees, base in, for each eye. After one month reports entire relief.

CASE IX.—Mrs. R. L. G., Bloomington. Subject to headache from childhood. Past year much pain in back of head. Found hyperopia and three degrees of insufficiency of internal recti. Ordered for reading correction of manifest hyperopia, together with prisms one degree and a half, base in, for each eye, with *immediate* relief—whether permanent or not, we can not say, having had no further report.

Cases X and XI show the effect of prisms worn constantly in the more serious and less tractable variety of insufficiency—that of the external recti.

CASE X.—Miss P., nurse. Pain in head, especially back of head and neck. Astigmatism and five degrees of insufficiency of external recti. Ordered for each eye + 1.50 D. cyl. ax. 90° , with prism two degrees, base out. After one month's constant use reports relief, especially to pain in back of head and neck.

CASE XI.—Mrs. F. M. H. Extremely nervous. Frontal headache. Found myopia, astigmatism, and weakness of external recti. Corrected astigmatism and half of myopia, with no relief. Added prisms, base out, half a degree right eye, one degree left, with very marked improvement.

I wish to cite just one more case showing what I consider the most rational and satisfactory method of treating insufficiency of internal recti when patient will faithfully persist:

CASE XII.—Mrs. C. M. Frequent dizziness, drawing feeling in eyes, etc. Says she had one spell of "falling unconscious." Found insufficiency of internal recti, but no refractive error until late in the treatment, when a slight astigmatism was revealed under atropine. One oculist had performed four tenotomies (probably graduated or partial) on her external recti without improvement. Small doses of strychnine, with prism practice two or three times a week for two months, effected a practical cure, the insufficiency almost entirely disappearing, and no disagreeable symptom remaining, except occasional spots before the eyes.

In conclusion, let me not be understood as affirming that operative treatment is *never* advisable in insufficiencies of the ocular muscles, but that it should only be resorted to when the insufficiency and symptoms attributed to it persist, when the diagnosis is reasonably certain, when the patient is not hopelessly neurotic, and when all the more conservative measures above mentioned have been tried and found wanting.

A CASE OF
DERMOID CYST OF THE RIGHT OVARY,
FOLLOWED BY
GANGRENE OF THE FALLOPIAN TUBE AND OVARY,
CAUSED BY A TWISTED PEDICLE.

By R. EMMETT GIFFEN, M.D.,

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In reviewing the literature of ovarian tumors I find but one case mentioned—that by Thornton—of gangrene caused by twisting of the pedicle. And there is some doubt in that case from the fact that it followed surgical interference. In the case I am about to report there was no surgical interference until the patient was placed on the operating-table.

Maggie S., aged twenty-eight, multipara, single, was admitted into St. Elizabeth Hospital August 8, 1892, in the medical department, suffering from pain in the lower part of the abdomen. Temperature, 102°; tympanites, etc. Five days later she was transferred to my department. I obtained from her the following history: She had always enjoyed fair health up to five years ago; she had a child at that time. One year after had gonorrhœa, followed by so-called "inflammation of the bowels"; was confined to bed for six weeks. For one year after that, with the exception of during her menstrual period, she was rather free from pain. For the past three years has suffered continually from pain in the right side, especially while at work, her occupation being that of a domestic. About a year ago she says that she felt a lump in the right groin, and while at stool it broke, and she passed considerable pus by the vagina, and continued to pass pus at intervals up to within a few days of her admission into the hospital.

At that time, while in the act of lifting a bedstead, she felt something that seemed to turn in the right side, and she was seized with the most excruciating pains in the right side and in the uterus and vagina, as if something was pulling the rectum and vagina. I saw her five days after her admission, and eight days after, as she termed it, her injury.

I examined her and found an enlarged tube and a cyst of the right annexa with abscess, and advised abdominal section. My wish was readily complied with, and on the following day, assisted by Dr. Britt, Dr. Grimes, and Dr. Beebe, I opened the

abdomen (it is understood that in all my operations everything is rendered thoroughly aseptic) and found a twisted pedicle, twice round, of the Fallopian tube, of a blackish-gray appearance, and so friable that in attempting to lift it up it tore to pieces, although the slightest force was used. I then enlarged the opening in the abdominal wall and passed my hand down into the pelvic cavity and found a cyst with a pedicle attached to the vaginal wall and twisted in like manner to the one attached to the uterus. I separated it from the vaginal wall, knowing the opening in the vagina would be a good point to drain through.

After removing the tube and ovary of the opposite side, there being a cyst of about the size of an egg in the left ovary, I washed the peritoneal cavity out thoroughly with hot water, put a drainage-tube through the opening in the vagina, and closed the abdomen. First of all, let me say that I always sew the peritoneum separately with a fine catgut continuous suture, then the muscular tissue in like manner, then use the interrupted suture, involving all the tissues save the peritoneum.

The patient rallied from the effects of the operation satisfactorily, and that night, while the nurse was absent from the room for a few moments, she got up out of bed, walked across the room, and, picking up a pitcher of water, drank copiously. Of course, the result was an attack of vomiting, which lasted several hours. On the following day her temperature was 101° F., and she complained of gas in her abdomen, which continued for five days, in spite of all remedies used. Her temperature never reached a point higher than that of the second day. I removed the drainage-tube on the third day. She continued to improve, on the fifteenth day after the operation was sitting up, and on the twenty-first day left the hospital feeling quite well. On opening the cyst, I found it to be a dermoid cyst, full of pus, with an opening in the twisted pedicle at the lower end—the one that communicated with the vagina. It also contained a piece of bone, a tooth, and a bunch of hair. The gangrene involved the Fallopian tube and part of the ovary. The cause of the gangrene can very readily be explained by the passage of air through the opening into the vagina to the abscess in the cyst, then the twisting of the pedicle by the turning of the cyst, cutting off all blood supply.

The Pan-American Medical Congress Excursion to Rome.—It has been definitely determined that the Pan-American Medical Congress Excursion to the Eleventh International Medical Congress will sail on the steamship Werra from New York on September 9th, the day following the adjournment of the congress at Washington, and will arrive at Genoa on September 20th, four days before the opening of the Rome meeting. Round-trip steamer tickets may be procured for \$142.50 for inside rooms, and \$150 and upward for outside rooms. Tickets are good for members of the congress and their families, and may be used at the option of the holder to return on any steamer of the line from Genoa, or on Saturday steamers from Bremen, or Sunday steamers from Southampton, during the months of October, November, and December. Physicians desiring to avail themselves of this exceptionally low rate should at once become members of the Pan-American Medical Congress by sending the registration fee (\$10) to the treasurer, Dr. A. M. Owen, Evansville, Ind., and informing the secretary-general, Dr. C. A. L. Reed, Cincinnati, of their intention to join the excursion. Passage should be secured without delay, as the trip, involving as it will a stop at the Azores and Gibraltar and a sixty hours' sail along the picturesque coasts of Spain, France, and Italy, promises to be very popular. Many prominent European guests of the Pan-American Congress will return on this occasion. The time allowed will afford American physicians an opportunity not only to attend the International Congress and visit Rome, but to extend their journey to the famous sanatoria of southern France and the Riviera.

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IMPROVED PREPARATIONS OF COCAINE.

THE *Pharmacological Record* for June treats of the latest improved forms of cocaine. The chemists of Germany seem especially constant in their endeavors to make the older drugs purer and better, no less than to develop new ones. This is eminently true of cocaine, now nearly ten years old in ophthalmic medicine, and its allies. According to Helbing, there are few preparations more liable than this group of drugs to varying degrees of purity, as found in commerce, and at the same time there are few in regard to which a definite and reliable physiological action is more urgently demanded. The preparations of the firm of Boehringer, of Waldorf, are prominent in this study, and they are found to be of an improved character and of an exemplary freedom from impurity. Cocaine hydrochloride continues to hold the first place as a local anæsthetic. The higher degree of purity existing to-day is discernible in the fact that Niemann's formula for cocaine—namely, $C_{17}H_{21}NO_4$ —has of late been found to need revision, and is now written $C_{17}H_{21}NO_4$. This new formulation is in part due to the fact that the best products of the best laboratories are marked by a notably increased freedom from uncombined ecgonine and from compounds of ecgonine other than benzoyl-ecgonine methyl ether as well as from those grosser impurities that find their way into or accompany nearly all our organic drug compounds. In addition to the hydrochloride, the other salts of cocaine that entered into this study in the *Record* were the nitrate and the hydrobromide, both of which answered well to the physical and chemical tests employed.

A new form of cocaine, called "dextrococaine," and its salt, the hydrochloride, is made the subject of a brief explanation by the investigator, regarding the method of their production. The optical activity of ecgonine and cocaine is a physical property common to organic bodies containing an asymmetrical carbon atom, being due to the effect of internal molecular motion on the rays of polarized light. Such optically active bodies, like tartaric acid, exist under two modifications, rotating to the right and to the left respectively. When the ordinary laboratory ecgonine or its derivatives are subjected to the action of strong caustic alkalis for several hours, a dextro-modification takes place, and dextro-ecgonine can be isolated from the product. This has the same chemical constitution as ordinary ecgonine, but behaves differently with the polarized ray; and it yields, under benzoylation and methylation, a cocaine that is likewise dextrorotary. This dextrococaine has an analogous physiological action to that of the ordinary (laboratory) cocaine, but is somewhat more rapid in its action and has

been found to cause a greater degree of local irritation than the older drug.

Still another new preparation, called "tropacocaine," derived from the narrow-leaved Java coca, is made by Boehringer, also its hydrochloride. The formula of this base reads $C_{15}H_{19}NO_2$. Although this drug has anæsthetic properties in common with cocaine, it is not mydriatic, and is reported by Liebreich and Chadbourne as being considerably less toxic. The solutions of the hydrochloride of tropacocaine have the advantage of high relative stability, and have been commended for dental purposes by Hugenschmidt, and for local anæsthesia, where marked and prompt action is desired, by Liebreich.

The conscientiously thorough work that has been done by the best cocaine manufacturers has greatly improved the therapeutic relations of that drug. "The difficulty of purification," says Helbing, "presented by the presence of various uncrystallizable substances," or amorphous bases that were too common in the cocaine of commerce a few years back, "could not have been overcome by any purely technical processes of the rule-of-thumb order. It was only by patient investigation pursued in the unwearying spirit of the scientific method, that the maker of cocaine has been able to obtain the high standard of purity that can be affirmed of the preparations we have been considering."

MINOR PARAGRAPHS.

THE EVENING WORLD'S CORPS OF FREE PHYSICIANS.

THIS corps was organized in 1889 for the purpose of caring during the summer months for neglected sick children who could not leave the city, or required medical attention before and after they had been taken to the country by the charities organized for that purpose, and it seems now to have become one of our permanent institutions. Its original plan of work was similar to that of the summer corps of the board of health, but its scope is much greater. Several physicians are employed to visit from house to house during the warm weather in search of neglected sick children, and to supply to them the care they need. The word care is to be interpreted in its broadest sense. It does not mean simply to prescribe medicine to be obtained at the neighboring apothecary's or to visit the child daily or oftener as may be needed, though these form a very important part of the physician's duties, but the needed changes are made as far as possible in food and hygienic surroundings. The food of a mother with a nursing child is made nutritious; clean, fresh cribs are furnished the little patients when required; if necessary, nurses are provided; and every effort is made to carry out whatever line of treatment seems best to the physician. While the purpose of the work is purely that of aid to the children, a suffering adult is not passed by—neglected sickness is cared for wherever it is found—but these persons are usually referred to hospitals and dispensaries if they require continued treatment. Cases of utter destitution are also temporarily relieved with food, and help is given, when possible, in obtaining work. Rent is never paid unless under exceptional circumstances. All these expenses are paid out of the fund subscribed for that purpose to the *Evening World*. The great amount of work done can be learned from the final report of the season of 1892, in which 207,188 visits were made, 16,495 patients treated, and 457 persons furnished with

clothing, 741 with food, and 2,400 with medicine. This year the corps began its labors on the 1st of June. Its members are all physicians who have had previous service and have proved themselves capable and judicious men, and it deserves recognition and support as one of the best and most efficient medical charitable organizations in the city.

THE TREATMENT OF URETHRAL STRICTURE BY ELECTROLYSIS.

ACCORDING to the *Medical Week* for June 23d, Dr. Reynier read a paper at a recent meeting of the Paris Surgical Society in which he stated that, out of eight cases of urethral stricture in which he had tried the electrolytic method, in two the treatment had had to be abandoned and internal urethrotomy performed instead, while in three others the desired result had been obtained only after two or three applications. In five cases electrolysis had been followed by a chill, in one by the formation of an abscess on the dorsum of the penis, and in two by lymphangitis. Currents of from fifteen to twenty milliamperes had always failed to relax the stricture, and comparatively powerful currents had been required to produce the required effect. The treatment had invariably produced pain that was but little modified by the previous application of cocaine. Dr. Reynier concluded that we were not justified in substituting electrolysis for internal urethrotomy, for, as now performed, that operation was usually devoid of risk.

CARDIAC POISONS OF MICROBIC ORIGIN.

DR. H. ROGER publishes a paper in the *Archives de physiologie* for April in which he states that his experiments show that sterilized cultures of the *Bacillus septicus putidus* contain toxins that act energetically on the frog's heart. These toxins are insoluble in alcohol. Their injection retards the action of the heart and increases the duration of the systole, and this effect may be prolonged for one or two seconds or even two seconds and a half. The arrest of the heart occurs in diastole, as in muscarine poisoning, but it occurs at a period when the beating is as energetic as normally, but becomes less and less frequent. The diastole may last from half a minute to a minute. Analogous results are obtained on living animals and on the isolated heart. During the continuance of the poisoning the heart can not be arrested by irritation of the pneumogastric, and it becomes equally insensible to faradaic currents acting directly upon the muscle.

A LINIMENT FOR EXCESSIVE SWEATING OF THE HANDS.

THE following formula is attributed to the *Journal des sciences médicales de Lille*: Borax and salicylic acid, each, fifteen parts; borie acid, four parts; glycerin and alcohol, each, sixty parts. The hands are to be rubbed with the liniment three times a day.

THE ONTARIO MEDICAL ASSOCIATION.

THE thirteenth annual meeting was held in Toronto on Wednesday and Thursday, June 21st and 22d. The attendance, although not so large as in some recent years, was quite good and the papers presented for discussion were fully up to the high standard of excellence for which the association is justly noted. The work done in the Sections in Medicine and Surgery was of a high character, and a series of frozen sections prepared in the anatomical department of Toronto University by

Dr. A. Primrose, with the assistance of Dr. F. N. G. Starr and Dr. A. R. Gardner, was a very interesting and instructive feature of the Section in Surgery. The proceedings of the association were gracefully and efficiently presided over by Dr. R. W. Hillary, of Aurora, who will be succeeded in the presidency by Dr. Laughlan McFarlane, of Toronto. The arrangement of the programme, both business and social, was in the hands of a very efficient and attentive committee, and to their efforts was due much of the success of the meeting.

ANTIPIRYNOMANIA.

UNDER this name Dr. Cappelletti (*Revista sperimentale di freniatria e di medicina legale*, March 31st; *Revue générale de clinique et de thérapeutique*, May 17th) writes of a mental affection caused by addiction to the use of antipyrine. An hysterical woman, twenty-three years old, had used the drug to excess for two years, to allay headache, taking every day as much as two drachms. She had become affected with loss of appetite, sleeplessness, tinnitus aurium, and muscular weakness. She entered a lunatic asylum of her own accord, to enable herself to abstain from antipyrine. The dose of the drug was reduced, but this produced such a state of prostration and such grave functional disturbances, even when the patient was unaware of the reduction, that potassium bromide and caffeine were resorted to. The patient was finally cured of these ill effects and of her craving for antipyrine. The author recommends the gradual reduction of the dose in such cases.

PHEDURETIN.

IN the May number of the *Centralblatt für die gesammte Therapie* there is a summary, from the *Pharmaceutische Post*, of an article on this new phenol derivative that has been brought forward by a Csestek apothecary named Orient. Mr. Orient describes pheduretin as forming fine, white, silky, acicular crystals that are tasteless, hardly soluble in cold water, and readily soluble in hot water. Its chemical constitution has not yet been determined with certainty. According to Mr. Orient's experiments on animals, it dissolves readily in the stomach and is absorbed into the blood within a short time. In large doses it appears to act upon the central nervous system and causes a profuse secretion of urine. A physician who has tried it in migraine is mentioned as having observed astonishingly good effects from it, coupled with its action as a powerful diuretic. The dose is from seven to fifteen grains, to be given twice a day.

A SNUFF FOR SUMMER CATARRH.

THE following formula is published in the *Correspondenzblatt für schweizer Aerzte*: Cocaine hydrochloride, one part; powdered camphor, two parts; bismuth subnitrate, sixteen parts.

ITEMS, ETC.

The Death of the Rev. E. P. Thwing, M. D., a medical missionary to Canton, China, has been reported by telegraph. Dr. Thwing's errand to China was largely in the interest of a proposed asylum for the insane, a form of hospital which had not hitherto found a foothold in that country. Dr. Thwing was regarded as the pioneer in that direction. He had been recently on a visit to his home in America, for the purpose of obtaining help for this object. Dr. Thwing was a native of Massachusetts. He was a graduate of the Andover Theological Seminary and of the Long Island College Hospital. Mrs. Thwing and two children are now in China, engaged in missionary work, and one of the

sons is a medical missionary in Alaska. Dr. Thwing's decease is said to have been due to typhoid fever, and it is thought that it was hastened by exhaustion consequent upon a prolonged nursing of his wife, who had been sick with the same disease.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 4, 1893:

DISEASES.	Week ending June 27.		Week ending July 4.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	6	2	0	1
Typhoid fever	19	6	17	5
Scarlet fever	66	12	74	9
Cerebro-spinal meningitis	4	2	7	6
Measles	214	15	159	17
Diphtheria	101	37	125	45
Small-pox	8	1	6	1

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 25 to July 1, 1893:*

TAYLOR, MARCUS E., Captain and Assistant Surgeon, will, by direction of the President, report in person to the president of the Army Retiring Board at Fort Logan, Colorado, when required by the board for examination by it.

MERIWEATHER, FRANK T., First Lieutenant and Assistant Surgeon, is relieved from duty at Madison Barracks, New York, and ordered to Fort Logan, Colorado, for duty.

LA GARDE, LOUIS A., Captain and Assistant Surgeon, will, in addition to his present duties in connection with the World's Columbian Exposition, furnish the necessary medical attendance for the officers and enlisted men of the army on duty at the Exposition grounds.

SHANNON, WILLIAM C., Captain and Assistant Surgeon, in addition to his duties in the office of the Surgeon General, is assigned to duty as assistant to the Attending Surgeon in this city.

MATTHEWS, WASHINGTON, Major and Surgeon. The leave of absence granted is extended one month.

WALKER, FREEMAN V., Captain and Assistant Surgeon, now on leave of absence at the Army and Navy Hospital, Hot Springs, Arkansas, will proceed at once to Fort Trumbull, Connecticut, and report in person to the commanding officer of that post for temporary duty, relieving CRONKHITE, HENRY M., Major and Surgeon. Major Cronkhite, upon being relieved by Captain Walker, will proceed to Fort Clark, Texas, and report in person to the commanding officer for duty at that post.

STARK, ALEXANDER N., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Monroe, Virginia, and ordered to Fort Clark, Texas, for duty, relieving MEARNS, EDGAR A., Captain and Assistant Surgeon. Captain Mearns, upon being thus relieved, will proceed to Nogales, Arizona, and report to the senior member of the commission appointed for the location and marking of the boundary between Mexico and the United States, for duty with the commission.

Book Notices.

A Text-book of the Theory and Practice of Medicine. By American Teachers. Edited by WILLIAM PEPPER, M.D., LL.D., Provost and Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania. In Two Volumes. Illustrated. Vol. I. Philadelphia: W. B. Saunders, 1893. Pp. xii-909.

DURING recent years there has been no lack or even scarcity of works on the practice of medicine, and among them there

have appeared several of unusual value and excellence. The medical profession, however, must always hail with satisfaction the addition of all good works to its literature. And especially is this true when the new work presents distinct advantage and marked superiority over its predecessors. Such is the case with the book edited by Dr. Pepper.

A mere inspection of the list of authors, including as it does many of the most prominent medical authorities of this country, is a sufficient indication of the excellence of the work, and this indication is amply confirmed by the consideration of the text. That the book is by American authorities only is particularly emphasized, and should be to us a source not only of satisfaction but of pride, for it compares to its great credit with similar works by foreign authors and justifies the statement made for it in the preface that it "may be said to represent truly the best teaching of the science and art of medicine at the present time in this country." It is undoubtedly one of the best text-books on the practice of medicine which we possess.

Hygiene is the first subject considered, and most ably but far too briefly for a subject so important. By its very excellence the chapter but increases the reader's appetite, which by its brevity it can not satisfy.

The fevers come next, and among them we wish to call particular attention to the article on typhoid fever, for as an example of what an article on a medical subject should be it is perfect. Complete, accurate, well arranged, and written in an easy, graceful, and most readable style (it is to be regretted that the last should be so rare a trait of medical literature), it is beyond criticism.

Then follow the contagious diseases and the exanthemata.

Twenty-three pages are devoted to syphilis. Now a knowledge of syphilis is in some degree necessary to every practitioner, and were a text-book on medicine the only book that physicians had they might well expect to find instruction on syphilis therein. But there are many works which more properly treat of this disease, and so important a subject can not be adequately discussed in twenty-three pages.

Leprosy also does not properly belong to general medicine, and yet three pages are given to it. The contagiousness of leprosy, we are aware, is open to dispute, but we must take exception to the author's statement that "the contagiousness of leprosy can not be doubted." The inclusion of actinomycosis is open to the same criticism, and of the disease might be said what the author himself says of the treatment—it "is almost entirely surgical."

The articles on anthrax, glanders, and foot and mouth disease might give rise to the same comment, but less justly, and certainly where a disease is on the debatable ground between two branches of medicine it is far wiser, for the sake of completeness, to suffer the accusation of commission rather than that of omission.

The volume is concluded by what is practically a separate work on diseases of the nervous system, so extensive and complete is it. Almost three hundred and fifty pages are devoted to the subject, and they are full of value. Especially noticeable here are the arrangement and grouping, always so important in a subject so complex.

Special features of the volume merit notice. References to authorities are frequent, but appear in the text, and the pages are not encumbered by a host of foot-notes which in a text-book serve but to distract the attention. Illustrations and charts are of sufficient number and excellent quality; several are unusually fine. The index is complete and well arranged.

The publisher, too, is to be congratulated upon the appearance of the volume. In paper, type, and binding it is in har-

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money with the matter it contains, and all combine to make this work one of exceptional value.

Psychopathia Sexualis, with Especial Reference to Contrary Sexual Instinct: a Medico-legal Study. By Dr. R. von KRAFFT-EBING, Professor of Psychiatry and Neurology, University of Vienna. Authorized Translation of the Seventh Enlarged and Revised German Edition, by CHARLES GILBERT CHADDOCK, M. D., Professor of Nervous and Mental Diseases, Marion-Sims College of Medicine, St. Louis. Philadelphia: The F. A. Davis Co., 1893. Pp. 436.

This work will be a revelation to many because it shows that sexual vices and depravity, perhaps most familiar through the writings of Martial and other authors of the period of Roman decadence, are still prevalent in various parts of the world. There is no doubt that Dr. von Schrenck-Notzing's inference is correct, that the seven German editions of this work were largely attributable to a pornographic interest on the part of the public; and we believe also that the statement that sexual perversions are to the physician himself a *terra incognita* is largely true.

That von Krafft-Ebing has succeeded well in his purpose of describing the pathological manifestations of sexual life is demonstrated by the one hundred and ninety-two histories contained in the volume. He disclaims any intention of laying the foundation of a psychology of sexual life, and his attempt to refer the pathological manifestations of that life to underlying conditions is as incomplete as he feared it might be.

It is the experience of all physicians that have had charge of lunatic asylums that sexual anomalies are frequently one of the expressions of the cerebral disease. Where these anomalies are not symptomatic they are the expressions of vice, and, as Krafft-Ebing himself says, they are committed by sensual men who have become satiated or impotent from excessive indulgence in a normal way or by those that have masturbated.

The reader is likely to be fatigued by the details of numbers of similar clinical histories, and the chapter on therapy is not likely to give him more than a suggestion regarding the methods of treatment.

A work on what is if not a vice a symptom seems superfluous; and one might as well expect value from a monograph on "dropsy" as from one on sexual perversion. It is not to be believed that this work did in the original any more good than the numerous pamphlets on similar subjects distributed by quacks do; and the letters incorporated in the text from those into whose hands *Psychopathia Sexualis* has fallen savor of the testimonials not unfamiliar to American physicians. The volume will undoubtedly gratify the curiosity of many and give scientific information to none.

Handbuch der physiologischen Optik. Von H. VON HELMHOLTZ. Zweite ungarbeitete Auflage. Mit zahlreichen in den Texte eingedruckten Holzschnitten. Siebenten Lieferung. Hamburg und Leipzig: Leopold Voss. Pp. 481 to 560.

This seventh fasciculus continues the discussion of the subject of the duration of the light impression on the retina, including the momentary impressions by moving objects, the effects of colored circles, and the description of various stroboscopic apparatus, including the anorthoscope. Section 23 treats of variations in retinal irritability, and includes a very full discussion of the subject of after-images, both positive and negative. Section 24 gives a most interesting account of the subject of contrast in color, both successive and simultaneous

contrast, including colored shadows, and the contrast in colors upon a large colored field. The whole subject has been very carefully gone over, but little has been added to what was contained in the first edition. The eighth fasciculus is announced to appear shortly.

Reports on the Progress of Medicine.

ORTHOPÆDIC SURGERY.

By HENRY LING TAYLOR, M. D.

The Forcible Straightening of Angular Deformities of the Knee.—A novel and efficient method of correcting old deformities at the knee joint is reported by Dr. Joel E. Goldthwait, of Boston (*Boston Medical and Surgical Journal*, Dec. 1, 1892). The operation is done under ether anesthesia by means of an apparatus devised by Dr. E. H. Bradford, and afterward modified by Dr. Goldthwait, with special reference to the correction of the subluxation. The apparatus is arranged to make pressure forward behind the head of the tibia, the counter-pressure being taken in front upon the femoral condyles. The head of the tibia is pressed forward by the mechanism, and the apparatus is also used as a lever to reduce the flexion. The author reports good results in the six cases in which it has been tried.

His conclusions are that angular deformities of the knee with fibrous ankylosis, resulting from chronic inflammatory conditions, whether tubercular or other, can be corrected by means of such mechanical appliances as are here described. The results, judging from six cases, are better than can be obtained by means of other operations. The leg is not mutilated or shortened, and the joint recovers with more or less power of motion. There is no mortality, and constitutional disturbance is slight. The danger of injuring the structures in the popliteal space is trifling, because of the anatomical arrangement of the parts as shown by dissections.

The author demonstrated the method and gave histories of five additional cases at the May meeting of the Orthopædic Section of the New York Academy of Medicine.

The results had been excellent in all the cases but one, where an abscess had followed. Many of the cases had been condemned to amputation or excision, but gave excellent results, the amount of mobility gained being surprising. The method is applicable only in old cases without tenderness or other evidence of inflammation, and where bony ankylosis is absent.

Fibroplastic White Swelling.—E. Nicaise (*Revue de chirurgie*, October, 1892) cites two cases of fibroplastic white swelling—tubercular arthritis with fibroplastic and fatty hyperplasia of the synovial membrane. He found a large part of the synovial membrane of the knee joint much thickened by the deposit of fatty fibroplastic material. Both patients were tubercular, and both had serous abscesses in the vicinity; in both the joint was much enlarged. Dr. Nicaise regards these cases as presenting a primary hypertrophic lesion, due to mild tubercular irritation of long standing, not as a late stage in the metamorphosis of ordinary fungous arthritis, though the latter process may in healing present fringes or nodules of fatty fibroplastic material on a smaller scale. He also excludes sarcoma. In both cases the fibroplastic change was in the anterior parts of the joint. In one the mass was over an inch thick. In the other the superior synovial pouch was obliterated by a large mass of this tissue. In neither was there suppuration or superfluous fluid in the joint.

Genu Valgum.—In Professor Wölder's clinic (Gratz), according to E. Regnier (*Arch. f. klin. Chirurg.*, xliii, 1892, 2), Macewen's supracondyloid operation is recommended, except in a few cases, where the principal deformity is below the knee, where osteotomy of the tibia and fibula is preferable. The deformity is reduced gradually by elastic traction, beginning a week after the operation. Seventeen successful cases are reported. The average duration of treatment was eighty-eight days.

A Paradoxical Symptom in Genu Valgum.—Dr. E. Estor (*Nouv. Montpellier méd.*, March 25, 1893) says that in the normal state, if the leg is fully flexed upon the thigh, the heel will come to lie a little to the inner side of the middle of the buttock. Now, as genu valgum is an exaggeration of the normal angularity existing between the tibia and the femur, with hypertrophy of the internal condyle, and as all observers admit that the deformity disappears on forced flexion, one might suppose that the heel would be carried still farther inward and rest upon the intergluteal crease; but this is not the case. After showing errors in the explanations of Tillaux, Albert, and Phocas, the author approves of that of Guéniot, who says that the knock-knee is corrected in flexion because the articular surfaces of the tibia are in relation with the posterior surfaces of the femoral condyles, which are normal. In the majority of cases, however, the condylar hypertrophy is general, and the projection of the posterior surface of the internal condyle forces the leg outward in flexion. The author observes that in genu valgum the tibia is generally bent at its upper part, the convexity being inward, which favors the coincidence of the direction of the lower part of the tibia in flexion with that of the femur.

It should also be remembered that the movement of forced flexion is one executed by the surgeon; he takes the leg in his hand and applies the heel to the buttock, which is always possible from the laxity of the lateral ligaments in flexion, even if a voluntary movement of flexion did not place it in this position.

Sacro iliac Disease.—Dr. Ridlon and Mr. Jones give a clear account (*Annals of Surgery*, March, 1893) of this affection, which is very rare and is usually secondary to lumbar Pott's disease. It generally occurs between the ages of seventeen and thirty, and is nearly always tubercular. The diagnosis is obscure, and the disease is rarely recognized before suppuration occurs, though it may run its course without suppuration. Van Hook believes that in the dry form the prognosis is good, in the suppurative form exceptionally bad; it appears to the authors, however, that the symptoms detailed of many of the non-suppurative cases hardly warrant the diagnosis of sacro-iliac tuberculosis, and that the fatal termination in the suppurative cases has more frequently been due to the character of the operative interference than to the nature of the affection. "Any operation which fails to remove all tuberculous material and to close the cavity by primary union without drainage should be recognized as distinctly adding to the risks to the patient's life." A fatal termination is usually due to septicæmia, simultaneous or intercurrent tuberculosis elsewhere, or general miliar tuberculosis.

The first symptom is usually a peculiar attitude, a "listing" of the trunk toward the affected side, and as this progresses the spine assumes a long, sweeping curve with its convexity toward the sound side. Before there is much deformity the patient is easily fatigued, and has experienced difficulty in bending forward and rising up again; ultimately stooping becomes impossible. The gait becomes waddling, and finally the patient is unable to walk. There is usually no thigh flexion, though there may be from psoas contraction, and there may or may not be apparent lengthening or shortening of the limb

of the affected side. The patient in standing rests upon the heel of the affected side, but puts nearly all the weight upon the sound leg. If referred pain is present, it is usually felt in the lower abdomen, but may be complained of along the front of the thigh and along the sciatic distribution. Early swelling is directed inward toward the interior of the pelvis, and may be felt *per rectum*. Sooner or later an external swelling appears, which usually progresses to fluctuation. Such abscesses usually burrow extensively; they may go upward in the multifidus spinæ into the lumbar region, through the anterior ligament along the psoas or iliacus, along the pyriformis into the buttock, or inward into the bowel. Atrophy of the buttock and thigh is uniformly present. Pressing deeply over the joint, or pressing or pulling the pelvic bones, usually produces pain. At times there is a tilting of the bones on each other. All the hip motions may be restricted, but if the thigh is slightly flexed so as to relax the psoas, all movements except those of extension and inversion are normal. A contracted psoas also limits motions of lumbar spine. The diagnosis from Pott's disease and hip disease can be made only by remembering that disease in any joint restricts all its normal movements to some extent. The authors reject ambulatory apparatus, and recommend immobilization with a Thomas double splint with the addition of a broad leather girdle; also recumbency until some time after the active stage of the disease has passed. As the disease usually appears in adult life, and the joint is readily accessible, the authors believe that on the appearance of suppuration operative measures should be considered, and that they are oftener indicated than in disease at any other joint. If an abscess can be detected within the pelvis the bone may be trephined, the abscess cleansed, diseased bone removed, the bone cauterized, and the wound closed. In the absence of fluctuation an incision may be required by œdema or tenderness, and the bone trephined for a casing center. The authors believe that to repeat the operation, if necessary, entails less risk than the insertion of a drainage-tube. After the operation the joint should be immobilized and the patient confined to bed till after the disappearance of all local tenderness.

At a meeting of the London Clinical Society (*Lancet*, March 18, 1893) Mr. Makins reported three cases of suppurative sacro-iliac disease—one in an adult, treated by trephining; two in children, treated by arthrotoomy with erosion. It was urged that the prognosis was better than the text-books usually laid down. The treatment should be the same as in tuberculous affections of other joints. Mr. Hulke considered that the cases were too few to draw general conclusions from as to prognosis. Mr. Gould said the general opinion was that the prognosis was exceedingly grave. He had treated three cases. Of these, the first, that of a woman, aged twenty four, had ended in recovery after scraping out the abscess cavity. In the second, that of a man of sixty, a sinus had persisted after scraping. In the third, that of a woman under thirty, he had removed all the bare bone he could, but had not been able to avert a fatal result. There had been very extensive disease of the sacrum and ilium.

The Modern Treatment of Joint Tuberculosis.—Professor König (*Arch. f. klin. Chirurg.*, vol. xliv, No. 3, p. 592; synopsis in *Revue d'orthopédie*, Jan., 1893) classifies the modern treatment of joint tuberculosis as follows: 1. Radical local operation. 2. Local injections of medicaments. 3. Mechanical treatment. He rejects absolutely early resection, employs continuous traction to correct deformity, and applies an immobilizing apparatus of plaster which is renewed with proper correction every six or eight weeks. He reports cures in full half of the cases by these means. Certain others are cured by iodoformized injections. The remaining cases and those of patients who can not spend the time necessary for cure by these means come to excision.

Of 410 cases of tuberculosis of the hip at the Göttingen clinic, 150 were treated by extension and plaster splints, and 50 patients had in addition injections of iodoform in glycerin; 210 were subjected to excision, with a mortality of 19 per cent.

In the knee, 100 resections in adults from twenty to sixty-six years of age gave the following results: 12 patients died, 64 were cured, 16 recovered with sinuses, 8 had to be subjected to amputation. In an investigation in 1888 the author was able to trace 70 of these patients. Forty-four were well and able to work, six had sinuses, and twenty had died, most of them of tuberculosis.

In Bardeleben's clinic (*Charité Annalen*, vol. xvii; note in *Centralblatt f. Chirurg.*, Jan. 7, 1893) there were from April 1, 1890, to April 1, 1891, 32 resections with 7 deaths, or 21.9 per cent.; of these, 13 were of the hip, with 5 deaths, or 38.5 per cent.; and 8 of the knee. Of the latter, 4 came to amputation eventually.

Lateral Curvature of the Spine.—For the treatment of severe cases Mr. Noble Smith advises (*Annales d'orthopédie*, March, 1893) the use of Chauce's apparatus acting on the principle of antero-posterior support. He lays special stress on the importance of studying and carefully following up each case, and adapting and modifying apparatus according to the necessities of treatment.

Of the Ling, or Swedish, system of movements, the author says: "They have little action in causing the disappearance of permanent curvatures. They develop the muscles and improve the general health of the patients; but these are effects which can be produced by any well-devised system of gymnastics, especially by passive exercises." "Ling's exercises, of little value even in cases of slight osseous deformity, are absolutely contraindicated in the graver cases." His opinion of the plaster jacket is as follows: "The treatment which consists in the employment of plaster jackets, in cases of grave deformity, is certainly the most fallacious that there is. Many of the surgeons who were at first enthusiastic partisans of this treatment, having learned better by experience, have abandoned it, as not fulfilling the hopes which were entertained for it. These appliances must be absolutely rejected: first, on account of their considerable weight; second, on account of their interference with respiration and cleanliness; third, because it can only be said for them that they are very heavy, compress the thorax, and afford very little support for the spine." He has an equally unfavorable opinion of felt jackets. He calls attention to the superiority of annealed steel, which can be bent and will retain its shape, and is thus superior to all other materials, including aluminium and bronze, in the construction of spinal apparatus.

He intimates, in conclusion, that the application of combined surgical and mechanical knowledge in the treatment of these cases can not fail to give better results than when work and responsibility are shared by the surgeon and the instrument-maker.

Voluntary Knee Luxation.—Professor J. Wolff (*Zeitschrift für orthopädische Chirurgie*, vol. ii, No. 1, 1892) describes a unique case of voluntary congenital knee luxation, with anomalies of nearly all the joints of the body, in a girl nine years and a half old. Most of the joints showed abnormal laxity of the capsule and ligaments, permitting of luxations and subluxations in various directions. There was a permanent congenital luxation at each hip and at the left knee; the latter had been reduced by a partial resection of the knee in 1887; the patella was rudimentary; some motion remained. There was a movable, congenital dislocation at the proximal extremity of each radius, and there was a voluntary luxation at the right knee. The patient was able to displace the right tibia forward and upward at will

by muscular contraction, and also to replace it. It could also be displaced and replaced passively. There was no functional disturbance, because the displacement never occurred involuntarily in standing or walking. When the patient was lying quiet the luxation occasionally occurred spontaneously, but it could always be prevented if the patient thought of it. When the luxation was present and the patient recumbent the knee could be superextended to nearly a right angle, and lateral mobility in this position was much increased. When it was not luxated superextension existed only to 170° and there was less lateral mobility. The bones forming the knee joint, including the patella, were in their normal relations. The author believes that there was a congenital laxity of the ligamentous structures of the joints, causing the permanent luxations in these joints, and suggests such laxity as an ætiological factor in congenital luxations or in a certain number of them. He suggests that the shallowness of the acetabulum may be a result rather than a cause of congenital luxation at the hip, and that position and pressure *in utero* must be a more infrequent cause than is stated by some authors. Malpositions at birth, so frequently observed in these cases, may be the result of the ligamentous flaccidity, rather than the cause of the luxations. The author has found only eight cases of voluntary luxation in medical literature. Of these, six were of the hip, four unilateral, two bilateral, one was of the patella, and one of several joints.

Absence of the Patella.—A case of this rare anomaly is reported by Dr. V. Ménard (*Revue d'orthopédie*, March, 1893). It was observed in a boy four years and a half old, the subject of congenital luxation of the right hip. The patella and connected tendons were completely wanting on each side. There was fair but diminished power of extension at the knees through the vasti, and there was very little functional disturbance. The child's walk was only modified by the hip luxation. Cases of complete absence of the patella are rare, though cases where it is so rudimentary that it at first eludes observation are more frequent.

Spontaneous Luxation of the Patella.—Dr. Ménard reports also (*loc. cit.*) the case of a boy of eight, the subject of Pott's disease, with this abnormality of the left patella, which came on without accident, and was first noticed by the parents when the boy was three or four years old. When the patient was recumbent, with the knees extended, there was no noticeable difference between the two knees. The left patella occupied its normal position. At 45° of flexion the left patella slipped outward from the trochlear surface, and at 90° of flexion its internal border looked directly forward. In this position it could not be replaced; as extension took place, the reduction occurred spontaneously. When the knee was flexed it was impossible to prevent displacement. When it was flexed at a right angle contraction of the quadriceps could not initiate extension, which was at first aided by the hands, but was completed by muscular effort. There was no deformity of the femur, tibia, or patella, and the displacement was due to thickening and retraction of the femoral aponeurosis and the external ligament. The patient did not limp.

Lateral Deviations of the Thumb Joints.—Two cases of this rare deformity in a mother and son are reported by Dr. Joachimsthal (*Zeitschrift für orthopädische Chirurgie*, vol. ii, No. 3, 1892). The mother, forty-one years old, had a congenital deviation of the terminal phalanx of the thumb to the ulnar side on each hand. The angle was about 150° on the left side and 160° on the right. Motion was free, and the lateral deformity disappeared on flexion, as in genu valgum. In the flexed position a marked prominence of the capitulum of the proximal phalanx was felt on the radial side. The deformity could be overcome by pressure on the ulnar side of the distal phalanx.

The woman's sister's child had the same deformity; a second child of the same sister had the same deformity on the right side, and on the left hand a supernumerary thumb.

The second case was that of the woman's ten-year-old son (her second child). Her two other children were free from deformity. The patient had a severe congenital right clubfoot. The thumbs presented in an increased degree the deformity shown by the mother. There was no direct interference with their function. This deformity has been called *clinodactylia* (*Klinodactylie*) by Herzog, but the author proposes for lateral deviation of the phalanges the names *digitus* and *pollex valgus* (or *varus*, if to the radial side), and calls attention to the analogy with *genu valgum*.

These cases were not treated, but the author believes the thumbs could be straightened by appropriate splints. These and other congenital anomalies occurring with congenital clubfoot and not explicable by the uterine-pressure theory tend, as the author points out, to discredit it as an adequate explanation of the causation of clubfoot.

Congenital Torticollis.—Murray (*Liverpool Medico-chirurgical Journal*, July, 1892) rejects the traumatic and neurotic theories of the origin of congenital wryneck, and believes the deformity is due, as in congenital talipes equino-varus, to a "permanent though sometimes exaggerated condition of the physiological position" during intra-uterine life. There was a history of cross-birth in six out of his seven cases.

Scoliosis Capitis (Caput Obliquum).—This is a well-defined congenital deformity of the cranial and facial bones, so that in a vertical view the head appears compressed in one diagonal diameter, elongated in the other. Dr. Beely, of Berlin, gives histories of seventeen cases (*Zeitschrift für orthopädische Chirurgie*, vol. ii, No. 1), associated with other congenital pressure (?) deformities, as follows: With torticollis, seven times; four times with retraction of a sterno-mastoid; three times with no observable shortening. With scoliosis, demonstrably congenital in most of the cases, seven times; with congenital pes equino-varus, twice; with genu valgum, twice, etc. It does not appear alone and has often been observed in boys than in girls—14 to 3. There is little tendency to recovery, and treatment is not required. The author calls attention to the value of this deformity as evidence that the accompanying deformities belong to the category of congenital pressure deformities. The author incidentally remarks that myotomy is rarely called for in congenital torticollis, where manual and instrumental stretching are carefully and perseveringly applied.

The Treatment of Torticollis.—In obstinate cases of this deformity Lorenz advises (*Brit. Med. Jour.*, April 8, 1893) division of both heads of the contracted sterno-mastoid through an open incision just above the clavicle. The sheath and any contracted bands of fascia are also divided. The secondary scoliosis is overcorrected by manual force during anesthesia, and the neck is held in this position for from eight to ten days by means of a bandage. The after-treatment consists of appropriate exercises. He reports twelve cases cured and no failures.

The Anatomy of Congenital Equino-varus.—The observation was made by Dr. Hubert L. Burrell (*Annals of Surgery*, March, 1893) on a seven-months child that lived four hours. The right foot was normal. The left had a moderate equino-varus deformity; the anterior part of the foot could be corrected manually, but the sole of the heel tended always to face inward. The axis of the foot was curved with the concavity inward; the plantar fascia was slightly contracted. Any attempt at correction put the tendo Achillis, the flexor longus digitorum, the flexor longus hallucis, and the tibialis posticus on the stretch. The skin over the tendons, as they crossed the inner border of the foot, was tense when the foot was in a cor-

rected position, and dissection showed it more adherent than is normal. The astragalus of the deformed foot was small, its neck short, its axis curved with the concavity inward, its articular surface anteriorly smaller than normal. In the normal foot the articulating surface of the astragalus with the tibia had three facets: in the deformed foot two, one for the tibia and one for the external malleolus; the facet for the articulation with the fibula was covered with connective tissue instead of glistening cartilage. The outer part of the head of the astragalus, as it articulated with the scaphoid, was distinctly diminished in size. The interarticular ligament between the astragalus and the os calcis was rudimentary. The plane of the superior articulating surface of the os calcis was oblique and faced inward and upward in the deformed foot, and the depth of the os calcis was considerably greater on the outer side. The os calcis of the deformed foot was small.

Vertical or Slanting Writing.—The question whether a vertical handwriting or the usual inclined form is the more favorable to the position of the penman is being investigated by German specialists.

George Burckhardt (*Zeitschrift für Orthopädie*, vol. ii, No. 1, 1892) gives the results of exact measurement with instruments of precision. He finds the most favorable position for inclined writing is for the page to be about ten degrees to the right of the middle of the body, and not parallel to the edge of the table, but turned fifteen degrees to the left, as in that position the attitude is best. If the lines of the eyes or of the shoulder are inclined either way five degrees or less the position is called "good"; if the inclination is greater the position is classed as "bad." One hundred and thirty-one children writing an inclined hand gave 35, or 26.2 per cent., with a good attitude, and 96, or 73.8 per cent., with a faulty attitude.

For vertical writing the best position is attained by keeping the page nearly in front of the middle of the chest and parallel to the edge of the table. Sixty measurements gave 49, or 81.6 per cent., with good position, and 11, or 18.4 per cent., with bad position; so that the latter mode of writing is to be preferred on the score of attitude.

Obstetric Paralysis.—The pathology and ætiology of this affection are clearly discussed by Dr. C. F. Carter (*Boston Med. and Surg. Jour.*, May 4, 1893). He tabulates Lovett's and Burr's reported cases and sixteen of his own, making statistics of thirty-two cases. He concludes that the upper-arm type of obstetric paralysis is due to a stretching of the upper trunk of the brachial plexus (formed from the fifth and sixth cervical nerves) during the process of delivery. This is brought about by traction on the head or pressure on the breech when the shoulder is retarded, or by traction on the shoulder when the head is retarded—not by pressure of the forceps, as often assumed. The prognosis, as a rule, is good, though recovery may be delayed for months or years. Permanent disability is rare.

The muscles paralyzed are the deltoid, supraspinatus, infraspinatus, teres minor, biceps, and brachialis anticus, with the supinators. In some of the severe cases some of the extensors of the wrist and fingers may be involved. The affected arm is held by the side in a position of internal rotation, the elbow pointing outward. The fingers are usually semiflexed. The paralysis is rarely noticed before the second or third day. After a few days the reaction of degeneration is well marked in the affected muscles, and, if one were able to test satisfactorily in such young subjects, diminution of sensation would probably be found on the outer aspect of the shoulder and upper arm and on the radial side of the forearm.

The treatment consists in the use of passive movements, massage, and electricity (galvanism two or three times weekly through the brachial plexus and affected muscles).

Miscellany.

Abscess of the Liver.—We are indebted to Dr. Augustus McShane, of New Orleans, the secretary of the Orleans Parish Medical Society, for a report of the proceedings of a meeting of the society, held on April 29th, at which Dr. A. J. Bloch read an account of a case of abscess of the liver. Resection of a rib was performed and a large opening made into the abscess cavity, giving exit to fully a pint of very foul pus. The further progress of the case was related by Dr. Bloch as follows:

"Fearing to irrigate under chloroform, as the cavity communicated with the lung and the water might clog up the latter and produce death from asphyxia, I packed the cavity with iodoform gauze and had the patient removed to bed. The patient rallied well; his pulse, as before the operation, was 155 a minute, his respirations 40. The following day I irrigated with a two-per-cent. solution of carbolic acid and substituted a drainage-tube for the gauze. The change in his condition the next week was phenomenal; his temperature became normal; his pulse was reduced to 110, stronger and fuller; his appetite was inordinate, eating or asking to be fed whenever awake; his respirations from 24 to 28 a minute. He had been taking a tonic of iron and quinine, and when constipated, a little sulphate of magnesia was given. Each day I irrigated the cavity with the carbolized solution, after which I injected peroxide of hydrogen, followed by iodoform and glycerin (3 iv to 3 vj). On April 15th I went to pay my daily visit. I found my patient in a very gratifying state; he complained a little of hiccough, but so confident did I feel in a future recovery that I promised to let him sit up in ten days. He was prepared to be dressed by the nurse in attendance, the patient assisting himself in the preparation. As soon as I introduced the nozzle of the syringe into the wound he began to cough; this was nothing unusual, as I experienced the same difficulty every day. I stopped for a moment, which gave him relief, and began again very gently to remove the pus. This time the cough became violent; my patient became cyanotic; I immediately grasped his pulse; it could not be felt; I tried every means possible to revive him, with no result; he was dead. I was unable to hold an autopsy and can account for his death to shock only, produced by a rupture of liver attachments, with a flow of pus and water into the abdominal cavity, superinduced by the cough."

In the discussion Dr. Sexton said that an abscess of the liver might open in several different directions: It might discharge into the stomach, into the intestines, or through the diaphragm and the right lung, and it had been known to burst into the pericardium. It was not improbable that the injected liquid might have found its way into the pericardium in Dr. Bloch's case, for the heart had stopped before the respiration. One need not be surprised at the fatal result; most of his own patients had died. Those that had recovered had mostly had superficial abscesses of the left lobe; the large abscesses of the right lobe were generally fatal. He had a case now under treatment in which the abscess was in the right lobe and was quite large. He had made an incision about four months before between the fifth and sixth ribs, and evacuated about two quarts of pus. He had practiced irrigation and passed a drainage-tube through the opening. The cavity had shrunk up so much that the tube could no longer be introduced. The man's wife had for some time performed the irrigating. The patient was now strong enough to come to the speaker's office. He had gained fifteen pounds in weight. Dr. Sexton condemned trephining of the ribs as a routine practice in abscess of the liver, for the following reasons: Necrosis of the exposed ends of the ribs was sure to take place, and thus a new disease was added to the old one. Furthermore, pus was apt to be absorbed through the cancellous tissue of the bone. Second, the traumatism incidental to the operation complicated the case; third, the sharp ends of the rib after the operation acted as an irritant to the surrounding soft parts. He had now in his service in the Charity Hospital a man whose rib had been resected for empyema. The empyema was cured, but the man wanted to have the necrosis attended to. Where practicable, a free incision in an intercostal space was to be preferred to resection. Last year he had had a case of superficial abscess of the left lobe that was working its way to the

surface; the diagnosis had been very easy. In order to help the pus to reach the surface he had directed the patient to lie always on his stomach. He had done this for a while, and his condition had been all that could be desired; but he had become tired of lying on his belly all the time, and changed to the dorsal position. The pus had infiltrated the deeper parts of the liver and the man had died.

The president, Dr. De Roaldes, did not think that the injection of warm water into the peritoneal cavity could have caused death from shock. During the Franco Prussian war, while he was a surgeon in the French army, he said, Dr. Robert, now practicing in Pau, had been abandoned at Amiens, after the battle of Sedan, as unable to continue in service on account of sickness. Subsequently his old teacher, Dr. Moutard-Martin, diagnosed a hepatic abscess. The abscess was opened with a free incision, and irrigation practiced. During the irrigations the doctor frequently spat up mouthfuls of injected liquid. Dr. De Roaldes had seen Dr. Robert two years ago; he was then a healthy man, and did not look at all as though he had once been regarded as a hopeless invalid. In those days resection of the ribs had not become popularized. Altogether Dr. De Roaldes had treated about thirteen cases; of these, only two had ended in recovery. One of the successful cases was that of a vegetable dealer of strong build. He resected an inch and a half of rib, which afforded free drainage; but he afterward had to treat the necrosis of the exposed ends of the rib. In the other case the abscess was opened with the galvano-cautery and simply irrigated. In another case, in consultation with Dr. Gaudet, the abscess was also opened with the galvano-cautery and the cavity packed with iodoform gauze. In a case that he saw with Dr. Renshaw, the abscess was opened and irrigation practiced. One day while they were irrigating, some liquid came out that had not gone in; the patient's wife recognized it as some broth that he had swallowed a few minutes before. He also vomited some carbolized water and had a diarrhoea of carbolized water. Later, a solution of some aniline dye was injected, and the man vomited some of the colored liquid and had a colored diarrhoea.

Dr. Mats said that the subject was one of unusual interest to him on account of the rather large number of cases that had come under his observation. When he had stated at the last meeting of the State medical society, in 1892, that he had treated more than twenty-five cases since 1880, some surprise had been caused by the statement. He had not been able on that occasion to state the exact percentage of mortality or of recoveries, because he had not yet tabulated and analyzed his cases, but he intended to do this fully in a future paper, and the results, he thought, would show a positive gain in the percentage of recoveries since the adoption of modern surgical methods. His ideas as to the prognosis of hepatic abscess had been positively changed for the better since his student days. When he was a resident student at the Charity Hospital, thirteen years ago, he had been impressed most unfavorably with the career of these cases, so that he had begun his practice with the conviction that the diagnosis of hepatic abscess was almost as bad as a patient's death warrant. The unfavorable results then had been due, in his opinion, to the extreme conservatism of the times, which had caused the practitioner to avoid an active surgical interference. The patients were treated in the medical wards and repeated aspiration with some modifications was the rule. The result was protracted hectic, increased loss of liver substance, and final death from marasmus. Operation by incision, if performed, was always done late, after all other measures had been exhausted and the patient was reduced to the most unfavorable condition for true surgical interference.

He thought that he had met with all the classical and typical conditions of hepatic abscess and many others that were not typical. He had not met with an accident such as recorded by Dr. Bloch. In an abscess which had not burst into the bronchi he thought irrigation was certainly indicated and free from bad consequences. In the liver it was not as in the pleural cavity, where injection with even sterilized water had been followed by disastrous and even fatal consequences. He could not believe that death had been caused in Dr. Bloch's case by the escape of some of the injected fluid into the peritoneum, because the accidental escape of the hepatic pus of tropical abscesses without fatal results had been recorded; especially had this been noticed by the French, who, in their recent and extensive experience in Annam and

Cochin China, had learned to practice the early evacuation of hepatic abscess by incision, without waiting for adhesions to form.

He himself made it a practice to wash out the abscess cavity thoroughly, and for this purpose always endeavored to gain free access to the interior of the cavity by free incision. He had at present in one of his wards in the Charity Hospital a case of enormous abscess of the right lobe of the liver which illustrated his usual practice. In this case a free incision was made in the right hypochondrium, which allowed a good inspection of the interior of the cavity and revealed an anfractuous surface lined with partially detached and disintegrating sloughs. During irrigation, with a hot dilute solution of peroxide of hydrogen (a hot solution of common salt was used very frequently), the interior was swabbed and scrubbed carefully with a large mop of absorbent cotton or sterilized gauze held in the bite of a long hysterectomy forceps. This served the purpose of a safe blunt curette. It was necessary to do more than simply evacuate the pus; we must scrub away the partially detached masses of sphacelated tissue that line the cavity, for they could never be expelled by simple irrigation through a tube, unless by a long and wasting suppuration. In this particular case there was a long history of protracted hectic and dysentery.

The patient was marasmic to an extreme degree. The speaker had even hesitated as to the propriety of any operation. Still, he had felt it his duty to give the man a chance, and, as he appeared to stand the anæsthetic (ether) better than had been expected, he had treated the abscess in the usual way. The right lobe reached the crest of the ilium, and over three quarts of pus escaped through the abdominal incision. After swabbing of the interior with a cotton mop the cavity was packed thoroughly with iodoform gauze (five-per-cent.) saturated with an emulsion of iodoform and glycerin, five-per-cent. The external dressings consisted of a heavy layer of bichloride gauze covered with absorbent cotton and held in place by a broad roller bandage. The patient rallied perfectly from the operation, much to the operator's surprise, yet the dysentery returned, as frequently occurred in these cases, but was checked finally. Over three weeks had elapsed since the operation, and the abscess was becoming smaller every day; the appetite had returned; there had been no fever; but in the last twenty-four hours a diffuse lymphangitis of the right foot and leg had set in which it was feared would alter the patient's prospects most unfavorably. Dr. Matas had tried the new antiseptic, *alumnal*, in this case. He was not dissatisfied with the iodoform emulsion which he always used in systematically packing the cavity, but he thought that he had here an excellent case in which to test the reputed pus-inhibitory properties alleged for this agent. The *alumnal* was used in glycerin solution (five-per-cent.), with which the cavity was freely irrigated before packing. These irrigations were made daily for a week, and were perfectly well borne by the patient. There was no irritation, and Mr. Lovell, the interne of the service, who conducted the after-treatment, was well satisfied with it; still it is difficult to estimate the comparative merits of a new agent in one case.

What Dr. Matas desired to emphasize most was the *early surgical* treatment of hepatic abscess, and by this he meant free incision, blunt curetting (scrubbing), irrigating, and thorough antiseptic packing. This was the ideal treatment applicable, because it converted an internal abscess into an open wound.

An incidental question was that of resection, or rather the resection, of one or more ribs in order to gain free access to the cavity. This procedure should not be arbitrarily or unconditionally condemned. There were cases in which it was indicated, and others in which it was not. We should be guided by the condition of the abscess and of the patient. He recalled a case that had come under his observation not long before. The patient was a man from Honduras. He had a large dysenteric abscess of the right lobe, which pointed below the ribs. It was simply incised, irrigated, scrubbed, and packed. One year after, the same patient had come with another abscess, but this time it involved the convexity of the liver, and Dr. Matas was compelled to resect three inches of the sixth rib in order to open a free avenue into the cavity. The patient again recovered, and he did not have necrosis of the exposed ends of the rib; indeed, that had not been noticed in any of his cases. In another case, which he had treated with Dr. Veazie, the liver had retracted under the ribs after a simple incision in

the hypochondrium; and in order to pack the cavity thoroughly he resected four inches of the right costal arch and made thereby an osteoplastic flap which allowed a free exposure of the hepatic cavity. Dr. Matas was opposed to trephining the ribs, because it was easy to injure the intercostal vessels and nerves, and because unnecessary traumatism was caused thereby without the compensatory advantage of a sufficient opening. The ribs should be excised subperiosteally with the periosteotome. The soft parts could easily be peeled off from a rib by simply passing a strong strip of sterilized gauze under the rib and moving it backward and forward in the manner of a chain saw. The denuded rib might be excised with a costotome, a bone-cutting forceps, or a short saw, to any desired length.

The American Medical Association.—In the *Journal of the American Medical Association* for June 24th Dr. Culbertson announces the termination of his editorial connection with the *Journal*, and makes certain statements in regard to the condition of the association.

"With an election of four new trustees," he says, "there was necessarily a practical reorganization of the board, under which the editor was not a candidate for re-election. His official relations with the *Journal* will cease with this issue.

"As the editor of the official organ of the American Medical Association for two years, the writer has obtained an insight into the workings of that organization which leads him to make the following statements of fact and opinion:

"The American Medical Association reached its highest membership in 1888 at Cincinnati. That city is located near the center of population of the United States, and the meeting was boomed through the local journal. Since that date there has been an annual decline of members and of revenue from their dues. The delinquents have been quite regularly every year a little more than forty per cent. of the members to whom the *Journal* is regularly mailed, which indicates faulty collections. While this may be the fault of no one in particular, it is no doubt mainly caused by the distant separation of the treasurer from the *Journal* office.

"In December, 1891, when the publication of the list of members was made, we were gratified at an apparent increase in members, which was, however, more than offset by the immediate receipt from the treasurer of a list of almost five hundred names to be dropped as delinquents. The past year has witnessed an increase followed by a larger decrease.

"The scientific work of the association has kept quite fully abreast of the age; the interest in section work has been very gratifying, and every year has brought an increasing number of scientific papers.

"This apparently anomalous condition leads to an inquiry as to the cause, which we find in the faulty constitutional organization of the association. It is at present a delegate body, and as such must annually draw its strength from the immediate locality of a meeting. Such a process insures growth up to a certain point, when the decrease begins to equal the increase and a liability to retrogression for a term of years as we are now witnessing. The registration at Milwaukee was one hundred and ninety-eight less than a year ago in Detroit, and surely this was not from lack of interest or appreciation on the part of physicians near to Milwaukee.

"Furthermore, the delegate system prevents the registration of all regular physicians at a place of meeting; for instance, in Detroit there were registered three hundred and eighty-five new members. These were delegates representing three thousand eight hundred and fifty physicians, every one of whom should have had an opportunity and a right to register as an active member. The same condition and effect will be shown at the Milwaukee meeting.

"Next year the meeting will be in San Francisco, and the delegates from that State said the Pacific coast had three thousand five hundred physicians. Suppose it has; only three hundred and fifty can become members of the association if every Pacific coast delegation is absolutely full, and constituted of new members. Says an old member: They can all become members by application. True, but they don't, and won't come in that way. It may seem to some like a very little thing to be deprived of a right to vote; but on that little thing hinges the right of equality and sovereign citizenship. To be deprived of that right is antagonistic and repugnant to American physicians. It has

been tried and don't work or go. Hence the absolute necessity for an abandonment of the delegate system of membership. Another cogent reason is the domination of votes in any meeting from the immediate locality. Milwaukee was entitled to about twenty delegates, but even that small number was greater than the entire representation from all the New England and Pacific coast States.

"The apparently feasible, practical solution of this question will be found in a modeling of the association constitution on the plan of the General Government of the United States, whereby the American Medical Association will become a federation of State medical societies, the members of the State societies, by reason of such membership, being members of the American Medical Association. The official relations of the State societies should be maintained by an appointment or election of one or two State society members to represent their States in the business committee of the American Medical Association. These official State society representations would give national character to the organization. The executive committees of the several sections as now constituted would give in the business committee a fair representation of the science and art of our profession. The business committee so constituted, representing every State in the nation and every special scientific department in medicine, becoming the legislative body of the American Medical Association and performing the functions of the nominating committee. This legislative branch of the American Medical Association should formulate and submit all measures that may seem desirable for reference and action to the several State societies, a majority of such societies governing the result of action upon such subjects, only such matters being sent to the State societies as pertain to the general interest of the medical profession of the nation. Providing, also, that in this federation of State societies there shall be represented but one such organization from any State.

"To the State societies in this national federation should be sent all amendments proposed for the constitution of the American Medical Association, and also amendments and revision of the code of ethics. The latter, when agreed upon, should be recommended to the State societies for adoption, but not made mandatory upon such societies.

"With a reorganization upon such a basis as the one outlined, there is no limit to the possible strength and growth of the American Medical Association, while its influence for good in all that pertains to the welfare of physicians and to the people would be immeasurable.

"Unless some such action is taken by this grand old representative body, there is imminent danger of disintegration and the formation of another body of national character, that will attempt to do the work that should be accomplished by the American Medical Association. This is a danger that is now menacing the American Medical Association. To be forewarned calls for a forearming."

The Innovations in the Army Medical Service, mentioned in general terms in our last issue, are thus set forth in the *Washington Evening Star*:

"The course of special instruction will be given in this city and will constitute what will be known as the Army Medical School. It will be conducted in the Army Medical Museum and will be of four months' duration. Four of the senior medical officers stationed in this city will, in addition to their other duties, conduct this course.

"One of the officers will act as president of the faculty and will lecture upon the duties of a medical officer in time of peace and war, the methods of conducting official correspondence, making reports to the department, the discharge of soldiers on certificates of disability, the examination of recruits, the rights and privileges of medical officers, their relations to other officers, and the customs of the service. His associates on the faculty will deal respectively with the subjects of military surgery, of military hygiene, and of clinical and sanitary microscopy. The course will be a practical one and include laboratory work, with the idea of making the young medical officer familiar with the most accurate methods of the sanitary examination of the air, water, and food; the recognition of known disease germs; the microscopic examination of morbid growths, etc.

"The other project of General Sternberg is to give the officers of the medical corps the advantages accruing from metropolitan life. He proposes to change the system of assigning medical officers for duty as

attending surgeons in the large cities. It has been the custom heretofore to detail for this purpose the older medical officers of the army. The duty usually lasts three or four years. In some cases it has lasted ten or a dozen years. The duty of the officer so detailed is to attend army officers and their families in and about the city of his location. Dr. Sternberg will hereafter detail medical officers having the rank of captain to duty as attending surgeons. The tour of duty will last only one year. By this system the medical officer selected will be enabled to become familiar with the practice of the leading physicians and surgeons in this country and to attend medical lectures and meetings of medical societies. The experience and observation will fit them the better for their second examination, which is required by law before they can be promoted to majorities.

"The details will be made in Boston, New York, Philadelphia, Baltimore, Chicago, St. Louis, and San Francisco. The senior medical officers who have heretofore been stationed in several of these cities as attending surgeons will be required to perform the more responsible duties of post surgeons at the larger military posts, where, as a rule, one or more younger officers will also be stationed as assistants. This policy will not only give the younger men of the medical corps better opportunities for professional advancement, but it will give them the benefit of the experience of their seniors and of the necessary instructions and discipline which so often in the past they failed to receive. This failure is due to the fact that they were stationed usually at remote frontier posts and were thrown upon their own responsibilities before they had the opportunity to make themselves familiar with the special duties of the medical officer of the army and the customs of the service.

"Both of these plans have received the approval of Secretary Lamont and steps will be taken to put them into execution as soon as practicable.

"A general order providing for the establishment of the army medical school referred to above was issued by Adjutant-General Williams to-day as follows:

"By direction of the Secretary of War, upon the recommendation of the surgeon general of the army, an army medical school will be established in the city of Washington for the purpose of instructing approved candidates for admission to the medical corps of the army in their duties as medical officers.

"The course of instruction will be for four months and will be given annually at the Army Medical Museum in Washington city, commencing on November 1st.

"Four professors will be selected from among the senior medical officers of the army stationed in or near the city of Washington, and as many associate professors as may be required to give practical laboratory instruction in the methods of sanitary analyses, microscopical technique, clinical microscopy, bacteriology, urine analysis, etc.

"The faculty of the army medical school will consist of:

"1. A president of the faculty, who shall be responsible for the discipline of the school, and who will deliver a course of lectures upon the duties of medical officers in war and peace (including property responsibility, examination of recruits, certificates of disability, reports, rights and privileges, customs of service, etc.).

"2. A professor of military surgery (including the care and transportation of wounded).

"3. A professor of military hygiene (including practical instruction in the examination of air, water, food, and clothing from a sanitary point of view).

"4. A professor of clinical and sanitary microscopy (including bacteriology and urology)."

Nephrotomy for Suppression of Urine.—In his Cavendish Lecture on Some Changes in Surgical Opinion regarding the Diseases of the Urinary Organs, published in the *Lancet* for June 17th, Mr. Henry Morris, of the Middlesex Hospital, says:

"The advances in renal surgery include nephrotomy for certain cases of suppression of urine, and some success has followed the treatment. The cases of anuria which the surgeon is likely to be called upon to treat may be grouped under two heads: (1) Mechanical anuria, and (2) reflex anuria.

"1. Mechanical anuria occurs after nephrectomy or after destruction by disease of one kidney; by the impaction in the ureter of the remaining kidney of a calculus, bloodclot, or mass of mucus; by a growth in the bladder blocking the urethral orifice; from kinking of the ureter of a movable kidney; or by the pressure on the ureter of some tumor, or by the cicatrization following pelvic abscess or pelvic cellulitis. 2. Reflex anuria, as one of the complications of urethral or urinary fever, has often been attributed to mechanical irritation of the urethra in front of the prostate. Opinions are at variance as to this view; but since the introduction of renal surgery it has been proved that a mechanical irritation in one kidney is a cause of total suppression in both. Thus, after a calculus has been extracted from the right kidney and a fistula has followed, complete suppression of urine due to a calculus in the left kidney has been relieved by extracting the left renal calculus, as shown by the escape of urine through the left side wound and through the right-sided fistula. James Israel has recorded the case of a man, aged forty nine, who for years had suffered from gout and right renal colic, and who at length was seized with left renal colic attended with total suppression of urine and caused by two stones impacted, the one in the renal pelvis and orifice of the ureter, and the other in the ureter a little lower down. As soon as these calculi were removed through a left lumbar incision both kidneys at once resumed their function, as was proved by the qualitative analyses of the urine passed through the bladder and through the left lumbar wound. To save life in such cases of anuria it is necessary to perform nephrectomy on the remaining or last obstructed kidney, and it is to be hoped that surgical opinion, aided by those distinguished physicians who from the first have recognized the beneficial effects of surgery in certain classes of renal affections, will soon cause the operation to be generally acknowledged by the profession as the proper treatment. This view is far from being at present generally accepted. In July last year I was called to see a gentleman, aged forty-seven, who had passed two or three calculi nine years, and again a similar number four years previously. He had ever since had frequent pain in the right renal region. After two days of all but complete anuria he was seen by a physician, who, in reply to the question of surgical interference, said that no surgeon in his senses would dream of operating. I saw the patient late at night on the third day of anuria and recommended pilocarpine, jalap powders, and vapor baths, and further advised that if no effective secretion followed thereupon nephrectomy should be performed. I heard nothing more until the seventh day of suppression, when I was again summoned at the instigation of Dr. Dickinson, who had that same afternoon seen the patient for the first time and had advised an operation, believing the anuria to be caused by calculous obstruction. But it was too late, for before I could reach the house the patient, after making a futile effort to pass water, became suddenly collapsed and died. In 1889 I was called, at the suggestion of Sir George (then Dr.) Johnson, to operate on a lady with a similar history. I performed nephrectomy upon the kidney opposite to the one which had previously been the seat of trouble; but it was too late. The anuria had persisted several days. The patient was aged and very obese, and she died about fifteen hours after the operation, but not before some ounces of urine had escaped into the dressings. In a third case a more satisfactory result followed. On January 5, 1889, I removed the left kidney for extreme hydronephrosis. In December last the right kidney, which was movable, showed marked signs of intermittent hydronephrosis with impaired secretion. Ably seconded by Dr. Knight, the lady's medical attendant, I was permitted to perform nephrectomy and stitch the cut edges of the kidney to the lumbar wound. The patient is now living and doing well, passing some of her urine through the urethra and some through the loin. There is no longer any fear of the further destruction of the kidney or of anuria from obstructed ureter. Surgical literature supplies us with evidence in favor of nephrectomy in such cases. Bardeenheuer, Clement Lucas, F. Lange, and Willy Meyer have each recorded a successful case. In each the operation on the second kidney was clearly indicated not only on account of anuria, but by the pain and other symptoms which pointed to obstruction in the ureter of that kidney. The operation in all four cases would have been indicated if no previous operation had been performed on the opposite kidney, but it became absolutely necessary in order to save life in two

of them by the fact that it was the patient's only kidney which was implicated.

"In a small proportion of cases after nephrectomy or nephrectomy suppression of urine follows—indeed, is caused by the operation—even though no mechanical obstruction whatever is present on the other side. These are typical instances of reflex anuria due to the disturbance of the nerve plexus of the organ operated upon. I have had one case of this kind which occurred in a woman thirty-five years of age upon whom I performed nephrectomy for calculous pyonephrosis. I have not as yet attempted operative treatment for such a case nor do I know of its having been used; but it has been proposed by Meyer under certain specified conditions to treat cases of anuria coming on after nephrectomy by 'an artificial direct depletion' of the remaining kidney with the view of reducing the hyperæmia which follows the ligation of the renal blood-vessels of the kidney removed. I do not think we must be sanguine of the results of such depletion, though the proposal seems to be worthy of trial."

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

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Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

THE TREATMENT OF
CERTAIN FORMS OF FRACTURE.*

By CHARLES PHELPS, M. A., M. D.,
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THE treatment of osseous fracture from rude beginnings has been eminently progressive and has gradually attained a perfection of methods and results remarkable even in the growth of modern surgery. In the management of many fractures it would seem that the possibilities of surgical art had been well-nigh exhausted, and this result has been so largely due to the contributive work of a great number of individuals, widely scattered in time and place and of varied degrees of professional prominence, that an unusual number of persons have come to rightfully regard themselves as identified with this particular phase of surgical progress.

This fact has rendered the subject one of exceptional universality of interest, and, together with its great practical importance to every general practitioner, has been sufficient to give it standing in the deliberations of any medical association not exclusively devoted to the advancement of special subjects. It is an application of the surgical art which, in the exigencies of our profession, even the physician most averse to surgical practice is occasionally compelled to make, and in which the results, when unfortunate, are patent, and become the subject of always severe, sometimes judicious, and occasionally judicial, comment.

It is therefore pardonable, where professional pride and personal responsibility are both so deeply concerned, to traverse well-worn paths, for something always remains to the gleaner. It would be both useless and fatiguing to sketch, even in the most desultory manner, the treatment of fractures, either in general or in classes. Recent authors, Stephen Smith and others, have given it entirely adequate attention. There are, however, certain details and general considerations which, if scarcely demanding extended individual comment, may yet be naturally aggregated as a personal contribution to the subject. In this view some facts and observations here collated are worthy of notice either because of their importance or of their failure of general recognition. They touch the matter at somewhat distant points, but are related by laws of general acceptance and application.

The simplest form of fracture is that of a long bone at some distance from a joint. Its treatment in accordance with the careful methods in vogue during recent years usually affords almost perfect results. Angular deformity under ordinary circumstances, and when the accepted appliances for coaptation, extension, and counter extension are employed, is hardly to be feared; and since the advent of the aseptic era, when the resection and wiring of obdurate fragments became practicable, any considerable distur-

tion is scarcely to be tolerated. Such, in this country at least, where mechanical skill is a common gift of Nature, has long been the happy outlook for those who are still unfortunate enough to suffer this simplest of simple fractures. Up to a much later period abroad, however, eccentric results were still sufficiently common. I well remember, when thirty years ago I first saw foreign museums of pathology, I marveled much at their richness in strange osseous deformities and distortions, but the wonder lessened when I subsequently saw and noted in the service of Velpeau the indifference, carelessness, and neglect in treatment, and the distorted limbs which seemed to quite content even the master in surgery. I doubt not bones in France have since come to unite in more æsthetic form, but I question whether even now results in this particular are comparable with what we are accustomed to see at home.

There is another point of view from which the result of treatment has been less uniformly fortunate, and from which failure is quite too frequent. I refer to the occurrence of non-union and of ligamentous union of the fragments. I shall not attempt to present a statistical account of what may be termed this accident of treatment. I have encountered a considerable number of such cases during the past few years, though it has chanced that none of them were originally in my care. They have involved the humerus, radius, ulna, femur, fibula, and tibia, and the last mentioned has been most frequently in fault. The ætiology which is directly connected with treatment is well known, and the constitutional causes I have found to be more generally operative in the larger bones. Thus in six instances involving the femur two were of syphilitic origin, one was from malnutrition, and the fourth apparently resulted from too frequent disturbance of the fragments at an early period, and to a subsequent cachectic general condition. In a very interesting case, however, in the practice of Dr. S. G. Cook, of New York, it was one of the metacarpal bones which suffered from constitutional cause. Union failed for ten weeks. The patient, who admitted former syphilitic infection, but presented no symptoms, was then subjected to specific treatment, and union began in two weeks' time and was rapidly perfected. It is evident that when the cause is wholly or in part of constitutional origin a corresponding general treatment is of primary importance, but local fixation and the correction of local errors should follow hard upon it. If the fault be essentially local the primary treatment must of course be local, but must often be supplemented by assiduous attention to the improvement of the general health.

I believe it can not be insisted upon too strenuously that possibility of imperfect union always exists. In a large proportion of such cases as have come under my observation the danger could have been averted by sufficiently early recognition and adequately careful treatment. There are instances like that in Dr. Cook's experience in which the clew is lost by absence of specific symptoms, and others in which constitutional depravity is irremediable. There are also instances of local default in which prevision is of

* Read before the Fifth District Branch of the New York State Medical Association, May 23, 1893.

no avail. Compound fractures sometimes, and intracapsular fractures of the cervix femoris always, fail of union. I speak advisedly of the latter lesion and am mindful of the earnest controversy which it incited some years ago, and which was so vigorously maintained by Dr. James R. Wood and Dr. Willard Parker. No one maintained that union seemed even possible *a priori*, but Dr. Parker presented a single specimen in which he believed it had actually taken place. Dr. John G. Johnson, of Brooklyn, demonstrated its fallacious character in a discussion of the whole subject, and no similar contention has since been made. The same anatomical conditions obtain in intracapsular fractures of the cervix humeri and the same result must follow. If full allowance be made for these exceptional instances it still remains that the major part of cases of non-union depend upon remediable causes and defects of treatment. I think it is further true that the error is usually local. If firm, accurate, undeviating, and persistent coaptation be made, osseous union will seldom fail in uncomplicated simple fractures. The present means at our disposal for securing and maintaining coaptation are so varied and so perfect and so readily permit relief from unduly prolonged and exhausting confinement, that the surgeon can rarely escape full responsibility for perfect restoration of the parts. If in fractures of the shaft of the humerus the elbows were always properly supported, if in fractures of the shaft of the femur the fragments were always properly reduced, if in all fractures after the application of proper retentive apparatus it were left without unnecessary disturbance, the opportunities for study in the field of ununited fractures would be seriously curtailed. I dissent strongly from the opinion that it is ever safe to intrust any fracture which is within reach of retentive apparatus to the sole protection afforded by surrounding parts. It is not very long since I saw a case in which an unsuspected fracture of the upper fourth of the fibula had remained ununited for some months, and had led to a subacute arthritis of the knee. It united readily in the usual time after the application of a silicate-of-soda bandage. No fracture could be better supported by thick muscular environment and no result could more distinctly illustrate the efficacy and necessity of surgical aid.

I had not intended to discuss the causes of ununited and improperly unioned fracture, or measures for its avoidance, but rather to consider one or two of the operative methods for its repair. It is always well to regard any case of this nature as simply one of delayed union till after the lapse of a considerable time and the thorough test of absolute immobility, with systematic hygienic and nutritive regimen. Where union is entirely wanting, attrition of the fragments may also be of service.

If operation is demanded, the choice lies between numerous procedures, two of which I have found to be efficient and deem to be simpler and safer than the others. These are (1) drilling, and (2) wiring and resection of the ends of the fragments, and of these the former seems to me, in suitable cases, the one to be preferred. It is certainly the easier of performance, can be indefinitely repeated, and in case of ultimate failure will not prejudice the resort to

more serious operative measures. The femur, of all bones, is perhaps least suited to its employment. In case by any chance purulent inflammation follows, it is liable to be diffused along the muscular planes and to involve loss of limb or even life itself. I have met with one such accident after drilling the femoral fragments, and though the patient escaped dire disaster and eventually obtained proper union without further operative interference, I fully realized the danger to which he had been subjected. I saw in my service as *interne*, before aseptic surgery was practiced, a case in which death did result from diffuse suppurative inflammation of the deeper structures of the thigh after one of the other operations for the establishment of osseous union. The control of deep femoral suppuration is sufficiently difficult under favorable circumstances, but when the constitutional condition of the patient is impaired by long confinement, and perhaps by specific poison besides, and when it is induced by subcutaneous lesion, the difficulty may well become insuperable. I therefore favor an open operation in the thigh which permits early and thorough antisepsis and drainage should they be demanded. Again, in very many, and probably in the majority, of cases there is an overlapping of the femoral fragments, which not only increases the difficulty of firm union, but causes deformity and weakness of the limb. An operation is requisite in which more perfect coaptation and a higher grade of ossific inflammation is obtainable, and in which, at the same time, the strength of the limb can be increased by the relief of deformity. I depend upon the wiring process to fulfill these indications. The seat of fracture is, of necessity, freely exposed, and every opportunity afforded for asepsis and drainage. Coaptation can be accurately effected and reduction of the fragments, or resection, if required, be made with proper care.

I am unprepared to demonstrate statistically its comparative safety or efficiency. Since the aseptic era, with which such comparison must begin, the whole number of recorded cases which have failed of osseous union and have been subjected to operation of any kind can not be large, and I am sure have not been tabulated. I have done this operation in two cases; in one, after resection of two inches and a half of bone, union became firm in thirty-three days and without the formation of pus; in the other, after a resection of one inch, union became firm in forty-five days after prolonged suppuration. In both the fracture had occurred in the middle third, six months previously in the first, and four months in the second. In the first case the subject was a girl of sixteen, suffering from the effects of syphilitic infection and dissipation; the second case was that of a man of twenty-nine, whose history was not clear. The method of operation presented nothing of special interest, and none of the delays and difficulties suggested by Treves were encountered. The question of safety is the general one of a simple wound originally uncontaminated and should hardly occasion anxiety. The certainty of cure, comparative and absolute, must be a matter of estimate in the absence of any large number of cases in modern practice. If the patient's general condition warrants surgical interference of any kind, and always pre-

supposing due skill and care on the part of the surgeon, success as well as safety should be reasonably assured. No other method has been devised in which the fragments can be so accurately secured, and under conditions so favorable to osseous production. If it results in failure, there is no reason to believe that the osteogenic process can be compelled by any other form of direct stimulation.

The consideration of ununited fractures of the humerus follows the same lines and leads to the same conclusions. The anatomical situation is similar and suggests the same views of treatment and of probable results. If there is much angular deformity or overriding of the fragments, or if a false joint has been formed, resection and wiring are likely to be indispensable. If there is simple non-union from want of support to the elbow or from too frequent manipulation during the progress of the case, drilling may possibly be successful, but is still injudicious for the same reason that obtains in case of the femur. In the present very general survey of the subject of mal-unions, it suffices to indicate the points of relation in this regard between the two bones.

In defective union of the smaller long bones of the extremities, notably the radius, ulna, and tibia, the question of treatment presents itself under somewhat different conditions. The fracture is likely to have occurred in a much more accessible position, usually subcutaneously, and even when nearer the head of the bone it has less formidable muscular surroundings. There is consequently diminished danger from the diffusion of pus from an accidental suppuration. The radius and ulna, if not the tibia, are much smaller bones than the femur or humerus, and their osteogenic property is proportionately easier to excite. It is also practicable to maintain absolute immobility without necessitating an irksome confinement of the patient, which is always detrimental to the general health, and indirectly prejudicial to the process of repair. It might therefore be expected that the simpler method of drilling would suffice in case of these bones, and in my experience the result has justified the expectation. I have several times resorted to it for one or both bones of the forearm, and always with success. I have used it in a much larger number of cases for the tibia, and, with the exception of those in which the patient has abandoned treatment, they have all been eventually cured. The exact number I am unable to state, but I think from fifteen to twenty would be a conservative estimate. The fractures of the forearm have all been simple; those of the tibia, in three or four instances, were originally compound. In the latter a loss of substance, suppuration in the wound, or caries and necrosis of the fragments sufficiently account for lack of proper union. In all the radial and ulnar cases I have thought failure to result from original fault of apparatus or its too frequent disturbance in the course of treatment which has prevented absolute immobility, and I have no doubt the same error has been contributive in many of the tibial cases. I have had no reason to suppose that constitutional causes were operative in any of them or that the interposition of the softer tissues had played a part. The essential and determining cause of tibial default I believe to be found in deficient posterior

support. I have certainly very generally observed it to be accompanied by a dropping backward of the lower fragment, which, as I infer, stands in relation of cause rather than of result, from the fact that when its prevention has been the subject of special care union has always been firm. It is not sufficient to apply a plaster or silicate-of-soda apparatus, or to rely solely upon lateral coaptation. In either case, with or without the immovable appliance, a posterior supporting splint of some sort is requisite to safety.

If operation has been finally determined, and drilling selected as the means, nothing can be easier than its execution. It is well to use an anæsthetic, especially in primary operations, but it may be dispensed with on occasion. In private practice, where it is usually available, nitrous oxide is the preferable agent. I have not observed Brainard's advice to use the drill sparingly, but am accustomed to perforate each fragment in every direction, upward and downward, without its withdrawal, and to insert it again, or even a third time if necessary, to reach every part of the bone within an inch or more of the line of fracture. I have not hesitated, with due caution, to wound the soft parts contiguous to the bone. If there is considerable hæmorrhage, it is none the worse for the prospect of cure. The bone is often soft, but in cases of long standing it is more probably eburnated and its medullary cavity empty. It is scarcely necessary to say that every aseptic precaution should be employed with the same thoroughness as in a capital operation. The limb should be dressed aseptically, and, after superficial inflammation has subsided, should be put in plaster for four weeks. At the end of that period, if union is not satisfactorily firm, the drilling should be repeated and the limb again incased in plaster. I know no limit to repetition of operation but success. When union has become reasonably firm, it may be intrusted to plaster for a longer period and the use of the limb permitted. The general health of the patient should receive the same attention as should be accorded in the treatment of recent fracture. If I have been more fortunate in my results than have other surgeons who have less confidence in this method, I attribute it entirely to my greater perseverance, or possibly in part and in some lesser degree to my habit of earlier interference. I know it has been thought wise to defer operation till after the lapse of many months. I am disposed to resort to the drill earlier—in two months even. I can not forget that the greater part of surgery is done in the service of the poor. It is their bones that are oftenest broken and that oftenest fail of solid union. If, then, time, which has to them an extraordinary value, can be saved by operation devoid of danger and fruitful of result, I am quite sure it should not be withheld in view of an otherwise possible recovery in the indefinite future. It is a luxury of dalliance beyond their means. If osseous union is delayed beyond two months it becomes improbable, and with the lapse of time the bone suffers changes which render the operative cure more difficult and more tedious. For a double reason, therefore, I advocate comparatively early interference.

I propose to very briefly abstract the history of three illustrative cases:

CASE I.—A young lady, thrown from her horse, fractured the right radius at the junction of the middle and lower thirds. At the end of two months, when I saw her first, union was still soft. She attributed the defective result, with apparent reason, to frequent removal of the dressings for purpose of examination. I drilled the fragments, and repeated the operation twice at intervals of thirty days before union was satisfactorily firm. The bone was in some way refractured at the same point shortly afterward, and I again used the drill for the fourth time, and without delay. The result was perfect at the end of the usual period, and now, after five years, is without reproach. No anæsthetic was employed.

CASE II.—A young man of twenty-five years was entangled in a rapidly-running rope, and his right leg nearly severed in the lower third. Both bones were comminuted, and the limb held only by the integument and fascia of its posterior aspect. A fragment of the tibia was removed at the first dressing, and others after the necrotic process. The accident occurred on March 19, 1889, and the patient was originally in care of Dr. F. S. Dennis. The wound was not entirely healed till August. Union on the 2d of November was still fibrous, and resort was had to drilling, which was repeated on December 1st and February following, with the application of the plaster apparatus. Union became progressively firmer, and three weeks after the last operation he was allowed to walk with a brace fastened to the shoe. I have seen him within the present month, and his leg is absolutely solid, with an inch shortening and some limitation in extension of the ankle.

CASE III.—A locomotive engineer received injuries in a collision which necessitated amputation of the left leg below the knee, and occasioned a compound fracture of the right leg at the junction of the middle and lower thirds, resulting in fibrous union. He stated that his fractured leg was treated with various forms of apparatus, and that he was allowed to sit up at the end of six months, and three months later to walk with a crutch. The wound at the point of fracture was unimportant and readily healed. The tibia was drilled after fourteen months, at the time he came under my care, and plaster applied. Union became somewhat firmer, and the bone was again drilled at the end of thirty-eight days. In six weeks union was so firm that, after the reapplication of plaster and another drilling, he was allowed to go home into the country and to bear weight upon the leg in walking. The plaster soon broke away at the ankle, and he continued to walk upon the leg without any considerable support. Two months later union was found to be much weakened, and he was again drilled and put in plaster. In another two months union had again become firmer, and he was drilled for the fifth time and sent home in plaster, to return at the end of the summer, three months afterward. I have not seen him since, and have been unable to obtain any information as to his condition.

The second case I regard as the most extraordinary instance I have ever seen of recovery without mutilation from a compound fracture, and the subsequent establishment of osseous union as scarcely less remarkable.

These instances of fracture in which osseous union originally failed for different reasons all teach the necessity of patience on the part of both surgeon and patient. The first and second were ultimately successful because the patients realized the gravity of their condition, and were possessed of sufficient intelligence and resolution to be guided by advice and to persevere to the end of treatment. In the third, a man of equal intelligence ignominiously deserted

when the prospect of cure was entirely hopeful, and left the surgeon not only helpless, but ignorant even whether or not his object had been accomplished. It is this infirmity of purpose which makes not only such cases, but primary fractures as well, often discouraging and always of uncertain issue. Any patient in hospital, or in private practice for that matter, is at any time quite likely to demand his discharge, in order to put himself in the care of an incompetent and irresponsible medical person, and to afford, perhaps, still another example of badly united fracture. The reference to causation in this accident would be most incomplete if attention were not emphatically directed to the patient's own frequent negligence, disobedience, and abrupt severance of professional relations.

Fractures through the extremities of the shaft of long bones constitute a clinical class by themselves. The danger here is less a question of angular deformity or of imperfect union than of fibrous ankylosis. It is true that I have quoted a case of non-union of the fibula near the knee joint, and that the adduction of the lower fragment in fracture of the surgical neck of the humerus is only too constant and too mischievous to escape attention; but the ever-present menace—the one never to be avoided without early recognition and unremitting care—is the limitation of articular movement. The propinquity of the joint is a source of trouble and danger which I may assume to need no explication. The necessity of judiciously early, patient, and prolonged passive motion is too thoroughly taught and understood to require even cursory mention. The use of massage, however, as practiced by the skilled masseur or masseuse, is an adjuvant in treatment of comparatively recent introduction and is worthy of at least passing consideration. It is not new to the profession, but as a definite means of accomplishing a specific object in surgical practice it is even yet imperfectly appreciated. In connection with the passive movements exercised by the surgeon, well-directed massaging and manipulation of the parts may be made of the greatest importance. It renders passive movements less painful, curtails the period of secondary treatment, and gives increased assurance of ultimate freedom of motion; but to obtain its full advantage it should be intrusted only to those who possess the requisite technical skill.

There is a special fracture in the vicinage of a joint which I propose to consider with some particularity, because it is in general so badly treated. This occurs at the lower end of the radius. In its more common form, known by the name of Colles, no fracture is more frequent; and, from the long-continued weakness of the hand and wrist which it usually entails, none is more important. It is because this secondary condition is unnecessary that I characterize the treatment of which it is the direct result as pre-eminently bad. My criticism applies solely to the splints habitually employed. The reduction of the fragments by extension, counter-extension, and manipulation, the subsequent lateral flexion of the hand to the ulnar side, and the use of anterior and posterior splints with the ulna and radius in parallel position, can not be questioned. It is the prolongation of these splints which is the source of

evil. I believe long splints are generally recommended in the standard text-books of surgery, and I know from my observation of hospital *internes* that their use is taught in the medical schools of New York with perhaps a single exception. It is insisted that immobilization of the wrist is essential to the stable fixation of the radial fragments. Actual experience shows this to be untrue, so that the prolonged and even permanent disability which it causes is gratuitous. The splints should be made of thin deal, a little wider than the forearm, should extend from the elbow to the wrist, leaving both joints free, and should be secured by broad bands of adhesive plaster and, if necessary, by a roller bandage. At the elbow they should allow absolute freedom of motion at the convenience of the patient. At the wrist they should accurately compress the extremities of the radius and ulna, just reaching to the margin of the joint without encroaching upon it. Although the wrist will be unimpeded in action and the hand mechanically unrestrained, the constraint of the forearm and the dependent position of the hand will maintain their absolute quiescence. The freedom of the joint from pressure or interference by apparatus insures its future integrity of action.

If the retentive bands of adhesive plaster are applied in the manner recommended by Dr. J. W. S. Gouley, who first in this country used the short splints for radial fracture, no readjustment will be required except as the subsidence of swelling may demand. In this method the lower band is attached to the inner border of the ulna, carried over the dorsal aspect of the wrist, and then over the anterior splint. The upper band is attached to the anterior surface of the forearm below the elbow and carried over the posterior splint. Each band is made long enough to more than surround the limb. If the bands are simply wrapped around both splints, almost daily readjustment will be required for a week or more on account of the slipping of the apparatus downward. In this event great care should be exercised to avoid disturbance of the fragments.

Any splints which extend below and fix the wrist joint should be denominated *long* and the term *short* restricted to those which leave the joint free. Some confusion in nomenclature exists from failure to make this distinction upon an anatomical basis. Long splints have been made to extend to the metacarpophalangeal articulations, or even to the finger tips. They have also been fashioned in pistol shape as a means of maintaining lateral flexion of the hand, and this point has been much exploited. The smallest experience with straight splints, long or short, demonstrates that the hand once made to assume the proper position will retain it without special care.

The effect of long splints upon the future usefulness of the hand and wrist is so constantly observed as to scarcely admit of question even by the advocates of their use. Months or years often elapse before they are sufficiently restored to easily subserve the ordinary functions of life, and their finer movements, indispensable in certain occupations, are often permanently impaired. It is objected that the short splints do not sufficiently hold the fragments after reduction to obviate the danger of deformity. Experience

and observation must be the sole arbiters in this point of dispute. I have never once treated this fracture in any other way, and I have never failed to keep the fragments in as good position as I was able to obtain in reduction. No splint can do more. This result has been confirmed in the practice of other surgeons who hold similar views. I believe deformity will be really less with this method of treatment, since the bone is more open to inspection, and trifling derangements can be more readily corrected and with less disturbance of the apparatus. There is equal advantage to be gained in the treatment of other fractures of the forearm by not extending the splints below the wrist.

Fractures of the extremities of long bones implicating the joints are always unfortunate in result. The operative procedures which they demand are of great interest, and I regret that the limits of this paper do not permit their consideration. The conditions and methods of interference are of too great importance to justify the merely casual mention to which I should be restricted.

The treatment of compound fractures is another subdivision of the general subject which is too extended for our present limitations of time and purpose. I am less reluctant to turn aside from its discussion since it is already prominent in the literature of aseptic surgery. It may be said to epitomize the methods and possibilities of asepsis as it is practiced at the present time. I can not refrain from contrasting the results in compound fractures of thirty-five years ago and of to-day. Then few escaped without loss of life or limb; now few lives or limbs are sacrificed. The occasional recoveries of unamputated patients which I saw at that epoch were in Bellevue and were mainly attributable to the genius of Dr. James R. Wood, in whose service at the hospital I had the honor to be and whose friendship I shared with all young men in the profession with whom he came in personal relation. His professional sagacity was phenomenal, and, by the maintenance of open wounds, thorough drainage, and the most systematic attention to cleanliness which available means then permitted, he unconsciously anticipated without antiseptic agents the most important part of modern aseptic treatment. It may be of passing interest to mention that impure carbolic acid was in use in that hospital at that time, but as a stimulant, not as an aseptic, and upon ulcers and old granulating surfaces, and not upon recent wounds.

The extraordinary collection of cases published a few years ago by Dr. F. S. Dennis admirably illustrates what is accomplished in the present aseptic care of this class of fractures. They probably underestimate than otherwise the chances of recovery. If those cases are excluded in which complications exist, as well as those in which some crushing violence has primarily destroyed or fatally impaired the vitality of all the structures of the part, failure to preserve the integrity of the limb may be fairly termed exceptional. A possible danger to life, born of aseptic faith, exists in overconfidence of the surgeon and a consequent attempt to avoid mutilation where there is no rational ground for hope. As safety lies in primary amputation, rash conservatism incurs a mortal responsibility. There is no conceivable contingency in which a surgical decision

requires a more delicate appreciation of all the features of a case, studied in the reflected light of past experience, nor in which it should follow a more critical survey of all the elements of the situation. It may even then ultimately depend in great degree upon a professional instinct, not ignorantly innate, but founded upon the unconscious impressions derived from a multitude of previous observations, which upon occasion takes precedence of all formulated rules. If under such circumstances it proves that life has been endangered in the vain effort to save a limb, the intelligent and conscientious discretion which has been exercised and the acknowledged fallibility of human judgment will afford full absolution from responsibility. There can be no similar condonation of the error which comes from technical ignorance and inexperience when wiser counsel can be had. Consultation costs nothing to the surgeon, and may profit much to the patient.

It may happen in a primary amputation, and usually does occur in secondary cases when the condition has become so depreciated as to be unfitted to withstand the effects of shock, that rapidity of operation is literally of vital importance. It can be facilitated by perfection of preparation; the assistants can be so familiarized with the operator's requirements, and his every possible want can be so exactly anticipated, that losses of time can be counted in seconds. I am accustomed to go further than this. The preservation of life is of paramount importance and the severance of the part which imperils it is the only pressing operative necessity. I therefore content myself with doing just this and no more. In such urgent cases I waste no time in forming flaps and have no hesitancy in cutting straight through the limb. If the patient lives, flaps may be fashioned or reamputation made at some more convenient season. I never employ an Esmarch bandage, and consequently have no occasion for a multitude of ligatures. There is no need for sutures or refinements of dressing. Three or four ligatures and a dash of hot water, a compress in the wound, some combination dressing, and a roller bandage over all, are matters of but a moment or two of time if preparation has been adequate. If the arterial trunk has been accurately compressed, if the anæsthetic employed has been nitrous oxide, or if ether or chloroform has not been carried beyond the necessary very moderate effect, shock will be reduced to its minimum. Cardiac and general stimulants can be hypodermically exhibited, hot-water bottles applied to the surface, and even hot-water enemata administered during the progress of an operation. It is the minutest attention to such details as these that makes the difference between life and death, and that has sometimes enabled me to save cases which seemed practically hopeless. I should perhaps apologize for passing by the many serious questions connected with the treatment of compound fractures to linger over the steps of an amputation. I have often observed, however, that things which are quite simple and obvious are most neglected and consequently least understood. I am not sure whether this provisional amputation has been heretofore recommended as a formal operation.

There are two fractures—one of the vault of the cra-

nium, the other of the patella—which, when simple, I usually make compound. This I do in the first for purpose of examination as well as of treatment, and in the second for treatment solely. I am compelled to assume, perhaps erroneously, that my views in regard to these fractures are known, for they have already appeared in print.

In a recent paper upon injuries of the head I referred briefly to fractures of the vault. I recur to them now in order to emphasize some points in treatment which I consider of sufficient importance to admit of iteration. These, in form at least, may be axiomatically expressed. A suspected simple fracture should be exposed by an incision of the scalp for purpose of examination. If a simple linear fracture be discovered, and there be no symptoms pointing to a complication, the wound may be closed. If with a linear fracture there be indications of meningeal hæmorrhage, or of lesion of the brain substance, or if there be an open fissure, trephination should be made for further exploration. If the fracture be depressed, the bone should be elevated, even in the absence of complicating symptoms. The further incision of the dura, or invasion of the brain itself, concerns the management of complications and not the fracture *per se*, and is consequently foreign to our purpose. This series of rules, which I regard as aphorisms, are founded upon a belief in the necessity for the elevation of depressed bone under all circumstances—a necessity so urgent as to demand that the depression should be determined or disproved by any requisite operative means. It has fortunately become possible to institute these exploratory measures without danger to the patient. The validity of the proposition that depressed bone should always be at once discovered and elevated or removed would seem to have been made convincingly clear in the history of numberless cases in which it has been neglected. It is not an occasional but a frequent instance in which, after the lapse of years, epilepsy, abscess, or mania has followed a cranial fracture, and in which a simple depression unrelieved, a cyst, or a spiculum of bone penetrating the brain, has been found to be the cause of an irremediable disease. If the occurrence of immediate danger is to limit responsibility, the surgeon may well allow his patient to drift, while he watches from day to day for the manifestation of primary symptoms, and in their absence for some brief time regard the cure complete. It is not even possible in a majority of cases to repair the evil consequences of such neglect by later operation; the remedy lies in prevention, not in cure. The epileptic habit, or the maniacal condition, once firmly established, the final removal of its cause is too often but an ineffectual resort. I have within the year removed an extensive area of depressed bone and a subjacent cyst in an adult, the result of an injury in childhood, without as yet any marked improvement in an epileptic condition. I offer no suggestion as to the method of primary operation. The employment of the elevator, rongeur, drill, chisel, or trephine is simply a matter of preference or convenience. The fact that a different view of practice is still maintained is simply an additional illustration of the vagaries of surgical opinion.

In the paper to which I have already referred I ex-

pressed an opinion that trephination is devoid of danger. I have feared lest I might have been understood in a broader sense than I intended. I am quite aware that this operation, in cases of chronic organic disease of the brain, is sometimes followed by a fatal result. I have recently trephined in a case of paresis in which I am convinced that death was hastened by interference. I am equally certain that an explorative trephination in a late stage of cerebral traumatism has in two instances been similarly unfortunate, and it is scarcely more than a month ago that, in a New York hospital, death followed trephination for epilepsy. It would not be difficult to multiply examples. In cases of recent fracture or of suspected meningeal hæmorrhage, to which I intended to confine my expression of opinion, I have no doubt of its entire safety. I have never seen any case in which there was the slightest reason to suspect that it had hastened or produced an untoward result. I do not hold the operation responsible for the effects of prolonged etherization, excessive hæmorrhage, or septic poison. It is true that shock from ether and hæmorrhage has proved fatal. If the brain has been crushed, the great venous sinuses wounded, or the larger meningeal arteries torn, much blood may be lost and considerable time occupied in the treatment of the wound; but it is these conditions, and not the operation which they necessitate, which involve danger. In the simpler and doubtful cases—the ones in which exploration or operation has been deprecated—there can be no great difficulty in safely limiting anæsthesia, controlling hæmorrhage, or counteracting the effects of shock. The further possibility of the occurrence of sepsis is not more a factor here than it is in operative wounds in general. If anything may be assumed absolutely, it is the certainty with which surgical cleanliness may be assured where the making of the wound, as well as its cure, is under the control of the surgeon. I have seen cases of compound fracture, originally contaminated or foul from neglect, in which the suppurative process had invaded the brain or its membranes, but I have seen none in which an operation made to convert a simple into a compound fracture, or to open the cranial cavity, has given entrance to the pyogenic germs.

If we consider, then, the serious morbid conditions which often follow a neglect to relieve the brain from bone pressure, and the absence of probable danger which it involves, there seems to be no good reason why fractures of the vault should not be subjected to as critical examination as other accessible injuries, or why practicable measures should not be taken to avert future complications.

The second of the simple fractures which I habitually make compound is that of the patella. Three years ago, at the annual meeting of the Bellevue Hospital Alumni Association, I advocated wiring this fracture as the treatment to be almost invariably adopted, excepting scarcely more than those cases in which organic visceral disease rendered any operative interference inadmissible. My later experience has been for recent fractures entirely corroborative of the statements made at that time. The essential contentions which I then made were: That the obstacle to union is usually the intervention of the anterior capsular

fibers, which fall between the fragments and prevent osseous contact, even though close approximation be effected; that this obstacle can not often be removed by any measure short of opening the joint; that this method is without danger; that its result is invariably osseous within less than half the time required for ligamentous union by other means; that restoration of the function of the joint can be made perfect by sufficient care in after-treatment; and that, when the surgeon possesses ordinary operative skill, it is an operation not of choice but of obligation. I had at that time operated in forty-two recorded cases. I had never lost a life or limb, had never had a drop of pus in the joint, had never failed of osseous union, and had never but once had any ultimately serious limitation of joint movement. Since then I have continued to treat this fracture in the same way with the same results, and have had no occasion to change my views. At that time, only three years ago, the operation was regarded very much as was ovariectomy thirty years previously. No one quite ventured to call it unjustifiable, but almost every one looked at it askance, congratulated himself that he did not do it, and cheerfully awaited disaster to the occasional man who did. As a gentleman expressed it at a meeting of the Surgical Section of the Academy of Medicine, he treated fractures of the patella without operation, and could sleep undisturbed at night. In this brief interval I have noted with pleasure that an increasing number of surgeons are able to so treat this fracture as to gain the best results without the loss of rest which an uneasy conscience or lack of self-confidence seems to entail.

It will be unnecessary to recapitulate the steps of operation, which I have since modified in only one or two particulars. I have discarded the use of strong antiseptic solutions. I began with a bichloride-of-mercury irrigation of 1 to 5,000. I afterward reduced its strength to 1 to 10,000, with some misgivings as to its safety. I now use a solution of 1 to 20,000 in boiled water. I have no reason to doubt that boiled water by itself would be as sufficient here as in the larger serous cavity of the peritonæum. I add the modicum of antiseptic salt as a perhaps unnecessary precaution lest the joint cavity should suffer some casual contamination during operation. I find that by this avoidance of strong antiseptics the subsequent restoration of movement in the joint is much more easily accomplished.

I continue the use of a single articular drainage-tube merely to afford an exit for post-operative hæmorrhage. I have long since ceased to fear the occurrence of purulent synovitis. I regard superficial suppuration, however, as quite possible whenever there has been much laceration of the soft parts; but if the deep sutures have been carefully placed and superficial drainage provided, there is not the slightest danger that pus will enter the joint.

In the second stage of treatment, after union has become sufficiently firm to render manipulation safe, the same advantage is to be derived from systematic massage that has been noted in fracture near the extremity of a long bone. There is the same necessity also, if it is to afford the greatest possible advantage, that it should be applied

by a professional person who possesses technical skill and experience. Since I have discarded antiseptics of more than nominal strength, and have employed a masseur in cases where the joint is of more than usual rigidity or where it readily inflames by the use of passive motion, I have had much less trouble in restoring natural function.

The proper treatment of recent fracture of the patella is, in my mind, quite clear and well determined, but what to do with the fracture which has existed for a longer time is often difficult to decide. It is such cases which are most likely to come from a distance for relief, and they are certain to include all those most unfit for operation. The conditions which militate against success are mainly three—the contraction of the quadriceps extensor muscle, the atrophy of the lower fragment, and the shortening of the ligamentum patellæ. The muscular contraction can be overcome by massage, and is consequently unimportant; the atrophy of the lower fragment is irremediable; but it is the shortening of the patellar ligament which renders many cases hopeless. Unless the fragments can be brought into at least partial contact, operation will be worse than useless. The length of time which has elapsed is important, but not absolutely determinate. At the end of two years I have obtained entire contact without difficulty or preliminary treatment. At the end of a few months even partial contact has been impracticable. In all cases the length of the quadriceps extensor should be restored, and the ligamentum patellæ, if possible, elongated by preliminary manipulation. Contact may be deceptive from portions of ruptured ligament which remain attached to the bony fragments. Operation, therefore, should not be ventured unless the fragments can be so readily brought together as to enable some allowance to be made for this source of error. There may be a single exception made to the rule. If there be absolute non-union, so that the whole joint cavity be subcutaneously exposed, flexion as well as extension impaired, and the limb so weakened as to justify occasion fear of fracture of the opposite patella, it may be well to operate even if doubt exist as to the nature of contact, and even at the risk of an ankylosed knee. If no contact at all be had, protection of the joint cavity will be lost and trouble probably arise from some form of synovitis. Old fractures of the patella at best are as troublesome and unsatisfactory after operation as recent cases are tractable and perfect in result.

There is an operation which has been recommended in place of wiring, and which has for its object approximation of the fragments by means of a subcutaneous suture. It is radically defective because it fails to secure osseous union. It does not provide for the removal of intervening capsular fibers, and has consequently no advantage over a plaster apparatus except in making approximation closer. It is quite as difficult to do as the radical open operation, and would seem to be quite as likely to be followed by superficial suppuration.

The consideration which I have been able to give to the several fractures mentioned has been of necessity hasty and imperfect. I have already disclaimed any intent to make either a systematic or an exhaustive study of the general

field in which they occur, and have sought only to emphasize some facts and observations which have impressed me with special force. I have spoken with some positiveness and insistence because my personal observation has led to positive convictions, and because I know that exact truth always loses by indirectness of expression.

34 WEST THIRTY-SEVENTH STREET.

REASONS FOR REMOVING ABDOMINAL TUMORS.

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SPECIAL study in the physiology and pathology of the viscera develops reasons for the removal of abdominal and pelvic tumors not apparent from superficial observations. It is well known that shortly after the appearance of a tumor in the abdomen the health of the patient becomes more or less impaired. The functions of the organs become deranged; the heart suffers from abnormal action and structure; the digestion becomes more or less deranged. As the tumor increases in size, kidney diseases generally develop. The liver, forming bile, glycogen, and urea, sooner or later becomes impaired in its rhythm.

The lungs lose their rhythm and become spasmodic, while the spleen shows its disturbance by pigmentary deposit on various portions of the body. An attempt will here be made to explain the pathological result of abdominal tumors on physiological and anatomical grounds.

The basis of the explanation will be by reflex action on the sympathetic nerve. It may be curtly observed that the pathology of the sympathetic nerve in health and disease is reflex action. An ideal nervous system consists of (a) a ganglion cell, (b) a conducting cord, and (c) a periphery. The sympathetic nerve possesses all these in an eminent degree. We will assume that the ganglia which are found in the sympathetic nerve, especially the abdominal brain and the three cervical ganglia, are points where forces are reorganized and redistributed to the viscera. The first essential feature to observe in the diseased viscera is the disturbance in rhythm. Though any abdominal tumor may produce the same results, we will choose a uterine myoma to illustrate our views. It is a principle in physiology that when a peripheral irritation is sent to the abdominal brain the reorganized forces will be emitted along the lines of least resistance, so that the organ which is supplied with the greatest number of nerve strands will suffer the most. Practically this principle holds true in every viscus.

The effects of the tumor on the heart may first be considered. An abdominal tumor induces fatty degeneration of the heart. Where the uterine tumor irritates the peripheral ends of the hypogastric plexus the irritation is transmitted to the abdominal brain and there reorganized and emitted along the splanchnics to the cervical ganglia, where a reorganization occurs and the force then passes down to the heart by way of the three cardiac nerves. The irritation could pass directly from the uterine myoma up the lateral chain of sympathetics to the three cervical

ganglia, when it becomes reorganized. It no doubt transmits part of the irritation by way of the abdominal brain and part by way of the lateral chain; so far as the heart is concerned, the result is nearly the same, for the irritation is reorganized in each case in the three cervical ganglia and transmitted to the heart. It is of course necessary to consider that the irritation may be sent to the spinal cord by way of the vagus and there reorganized; it is sent directly to the heart by the vagus.

The first manifest objective heart symptom is irregularity. The irritation from the uterine myoma reaches the heart in two ways:

1. The irritation passes up the hypogastric plexus to the abdominal brain, where it is reorganized and emitted to all the viscera over their respective sympathetic plexuses. In the case of the heart it passes up the abdominal splanchnics to the three cervical ganglia of the sympathetic, where it is reorganized and sent directly to the heart.

2. Some of the irritation is transmitted by way of the vagi to the medulla, where it is reorganized and sent directly to the heart by the cardiac nerves which supply the heart from the vagus. This is more especially the case in the right vagus, as that is the cranial nerve which largely supplies the heart and abdominal brain. Now, this irritation from the myoma goes on day and night. It gives the heart no rest; it flows on to the heart in the midst of a diastole or a systole. The first great characteristic of the heart rhythm is lost. Having lost its rhythm, the heart proceeds irregularly. Irregular action means a changed nourishment; continued irritation with disturbed rhythm induces the heart to overfeed itself, the result being hypertrophy. It may be noted that this hypertrophy is not brought about in precisely the same way that hypertrophy from valvulitis or aortic insufficiency is, but vaso-motor dilatation must play a rôle in overnourishing the cardiac muscles. It resembles more nearly the cardiac hypertrophy existing in goitre. The cardiac hypertrophy from the reflex irritation in myoma is also a moderate hypertrophy so far as the writer has observed, and it is a very slow process. In the first stage the heart becomes irregular, in the second hypertrophied, in the third stage the heart takes on fatty degeneration. Fatty degeneration of the heart is no doubt a preservative process, so that a large, vigorously beating heart will not rupture an artery in a degenerated state (atheromatous or fatty). It appears certain that many old cases of large uterine myoma are lost after skillful operations simply from fatty degeneration of the heart. It is common to observe palpitation in patients having uterine myoma, and a palpitating heart is the characteristic symptom of a weak one.

The automatic cardiac ganglia are disturbed by reflex irritation and take on an excessive nourishment. The irritation, sent to the heart over the hypogastric plexus, is in one sense an increased demand for action. The irritation, passing to the heart day and night, winter and summer, according to a physiological law, provokes hypertrophy if the nutritive powers are good. If the nutritive powers are not good, the complementary half of hypertrophy results in dilatation.

A fatty degenerated or a weak heart induces low blood pressure, and is the bottom factor in waste-laden blood and deficient eliminations. It allows local congestions and consequent impaired nourishment. The logical force of such circumstances teaches to remove uterine and other abdominal tumors as early as possible, so that the patient will not be left with partially or completely damaged viscera.

Reflexes arising from the irritation of the sympathetic in the peritoneal membrane are profound in results. Irregularity, hypertrophy, and degeneration of the heart is a reflex act accomplished mainly through the sympathetic system due to irritation at the periphery of the hypogastric plexus being transmitted to the abdominal brain, the three cervical ganglia, and some to the spinal cord, whence reorganization of the forces occurs.

The reorganized nervous impressions then pass to the heart over the six cardiac sympathetic and the six cardiac vagi nerves. This abnormal force deranges the fine balance of the heart's rhythm. The automatic cardiac ganglia become disordered, which in time disturbs vaso-motor action and consequently nourishment.

Abdominal tumors induce fatty degeneration of the liver. It may be asserted that an influence on the hepatic plexus of the nerves alone could stop all secretion in the liver. If such a proposition be true, it need not be wondered that lesser irritations on the hepatic nerve plexus could so alter the secretion of the liver that it would degenerate the organ. The characteristic disturbance which arises from the uterine myoma is to derange its rhythm. The liver has a rhythm due to (a) an elastic peritoneum inclosing it, (b) to an elastic capsule (Glisson's) surrounding it, and (c) to the capacity of its cells to enlarge.

The occasion of the liver rhythm is food carried to it by way of the portal vein. When the peritoneal and Glisson's capsule and the cells are expanded to a maximum, the liver rhythm is at its climax.

Now, the products of the liver (bile, glycogen, and urea) are sent to their respective homes by the elastic peritoneum and the elastic capsule of Glisson contracting. The liver then gets its rest and repair.

The irritation from the periphery of the hypogastric plexus passes up to the abdominal brain, where it is reorganized and emitted to the liver. The irritation goes to the liver at all hours from the tumor and deranges its rhythm. The irritation may vainly attempt to induce a rhythm without food, or it may flash on to the liver at any stage in the rhythm. The liver rhythm is induced by the automatic hepatic plexus. So that it may be asserted that the irritation of the uterine myoma deranges the rhythm of the liver. The second point to consider is the altered secretion in the liver, due to the reflex irritation from the uterine myoma by way of the abdominal brain. The products of the liver are bile, glycogen, and urea. The secretions may be changed in three ways by the irritation: 1. The secretion (bile, glycogen, and urea) may be too much. 2. The secretion (bile, glycogen, and urea) may be too little. 3. The secretion (bile, glycogen, and urea) may be disproportionate.

In any case the function of the liver will be impaired,

and the continued irritation increases the derangement. The irritation soon changes and impairs the liver nourishment. The complete process from food to end products becomes imperfect, and a lower grade of tissue is formed, known as fat. The constantly irritated liver soon becomes unable to form but little products beyond fat, and degeneration follows.

It is well known that women at the menopause frequently acquire liver disease. It is owing to reflex irritation through the abdominal brain. The degeneration of the hypogastric plexus will not allow it to transmit the physiological order over it to induce a monthly rhythm, so the accumulated energies flash on to other organs, and the liver is especially manifest, because its derangement is often followed by pigmentation (yellow or brown and black) of the skin. The uterine myoma then, by reflex action, disturbs rhythm and secretion in the liver, and so its nutrition. It ends in fatty degeneration.

(To be continued.)

TRANSILLUMINATION OF THE MASTOID CELLS AS A MEANS OF

DIAGNOSIS OF MASTOIDITIS INTERNA SUPPURATIVA.

By GEORGE W. CALDWELL, M.D.

WHEN we consider the serious nature of confined pus in the mastoid cells, the frequency of death from meningitis, thrombo-phlebitis, or metastatic abscesses resulting from recognized or unrecognized cases, the gravity of the operation for its relief, and the occasional operations which are done on a mistaken diagnosis in which no purulent collection is found, it is apparent that any means by which we may diagnose this disease with greater accuracy will be worthy of our careful attention.

Such a means will be found in the miniature electric lamp, and the conclusions to be deduced therefrom will be based upon the fact of the diaphanous nature of healthy mastoid cells and the opacity of pus; and the auxiliary proposition that however mastoids may differ in size, shape, and thickness, and therefore in transilluminability, they are practically at least the same on the two sides of a given head, thereby affording an easy and accurate basis for comparison.

The apparatus required is a battery which will develop about ten volts—roughly speaking, a five-cell battery—regulated to light well, but not burn out, a two or three candle-power electric lamp of very small caliber (supplied by Meyrowitz, East Twenty-third Street, New York), this being protected by thin rubber tubing fenestrated at one side and made to fit snugly at the meatus by a washer of larger tubing.

In a perfectly dark room the lamp is inserted well into the external auditory meatus, the fenestra directed backward, and the current made. Instantly the healthy mastoid is illuminated with a ruddy glow extending from the apex to the lateral sinus and to the limits of the cells above. The reverse manner may be more satisfactory in a given case, as when the canal is small, obstructed, or pain-

ful, and may be used with a larger lamp. A speculum of large size being placed as for examination of the membrana tympani, the electric lamp, incased in a rubber tubing projecting slightly beyond the lamp, is pressed against the mastoid and the current made, when the external auditory and middle ear will be filled with a rosy light from the posterior wall.

By placing the lamp on different portions of the mastoid the limitations of the cells and the position of the lateral sinus may be accurately mapped out, and the particular region in which a pathological process exists demonstrated. If the cells are occupied by a purulent collection, the glow will be absent and the cells will be dark. Comparison with the opposite healthy side renders the diagnosis of pus in the mastoid cells complete, whether or not the usual symptoms are present, for suppurative mastoiditis may exist without external indications, which, indeed, is the most dangerous form, as the process tends to extend inward, not outward.

D. Milton Green (*Journal of the Am. Med. Assoc.*, November 12, 1892) mentions five cases in which none of the external signs were present, no tenderness, pain, or swelling, yet pus was found either on the operating table or at the autopsy. Knapp has reported a fatal case (*Arch. of Otolaryngology*, July, 1892, page 239) in which no discharge from the ear ever occurred. In a series of eighty cases reported by J. Orne Green, of Boston (*Journal of the Am. Med. Sciences*, 1890, page 575), thirteen per cent. showed no external signs, yet confined pus was found. (See also report of forty-seven cases operated upon in Mount Sinai Hospital, New York, by Dr. Gruening, *New York Med. Jour.*, January 2, 1892.)

Frank, developed cases are easily recognized, but the classical indications of Schwartz or of Körner, quoted with more or less modification in every text-book of otology, are of uncertain assistance in deciding a doubtful case. The method which I have herein submitted is scientifically accurate, easy of application, painless, strikingly pictorial, instantly decisive, and demonstrable to the patient's friends.

339 WEST TWENTY-THIRD STREET.

OZONE IN THE TREATMENT OF DIPHTHERIA.

WITH REPORTS OF SEVEN CASES.

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THE histories of the following cases are given for the reason that they are typical cases, that they recovered, and that their recovery, I consider, is due in great measure to the powerful germicidal action of a new ozone preparation—therapol—to which I wish to call the attention of the medical profession.

Of the seven cases, six were so severe that had death occurred in any one, or all, it would not have been unexpected. That such a termination did not result, I believe, is due to the action of the remedial measures employed.

A summary of the treatment in full follows the clinical reports of the cases.

The parts involved in the diphtheritic process, as shown by the production of membrane, were as follows:

Case I, right tonsil; Case II, tonsils, pharynx, nose, and larynx; Case III, tonsils, pharynx, and nose; Case IV, larynx; Case V, tonsils, nose, and larynx; Case VI, tonsils and nose; Case VII, pharynx.

CASE I.—Lafayette L., aged three years and a half. First call, November 29, 1892. Child feverish; temperature, 101.5°. On examining throat, pharynx and soft palate red and swollen; tonsils also swollen and inflamed. Right tonsil covered with membranous patch, oval in shape, about half an inch in its long diameter.

Treatment.—By ordinary methods, fluid extract of gelsemium; disinfectants, as menthol, carbolic acid, and spirits of turpentine in boiling water, renewed frequently; iron and glycerin internally; Platt's chlorides for the room. The iron solution, turpentine in boiling water, and Platt's chlorides were used in all the cases cited.

November 30th.—Dr. Quimby, who had been physician to the family when they were living down town, called in consultation. He suggested the use of therapol, an ozone preparation of which I had heard nothing. Therapol was accordingly sent for and used, by swabbing the throat every hour and also syringing out the nose with same once in two hours. The case went rapidly on to recovery. Last visit was made on December 6th. Child had thoroughly recovered; the membrane disappeared from the throat in about forty-eight hours. At no time was there involvement of the nose or larynx.

CASE II.—Harold S., aged four years and a half. Called first on December 18, 1892. Child had been ailing for two or three days. Its parents thought it nothing but a slight cold. On investigation of the case, found the child feverish; temperature was not taken. The face was flushed. The throat, on inspection, showed the fauces, pharynx, and soft palate deeply swollen and inflamed. The tonsils were swollen so as almost to meet, and were covered on both sides with a thick, grayish membrane. Child could not breathe through the nose, from which a thick discharge escaped. All possible precautions were taken; the turpentine mixture with boiling water and Platt's chlorides as disinfectants; mixture of chloride of iron given internally and applied locally. This was all that was done at that time. Morning of the 19th, no change for the better. Nose completely blocked up, and foul crusts show protruding through the nostrils; whitish streaks in the pharynx; is getting hoarse. In addition to the foregoing remedies, therapol was sent for, throat was swabbed every hour, and the nose syringed with it every two hours. In syringing the nose a blunt-pointed glass syringe, holding about a drachm, was used. Half a syringe of the therapol was injected into each nostril. Lime was also constantly slaked in the room.

December 20th.—Nose and throat clean. Child can breathe freely through the nose; patches entirely removed from the tonsils and pharynx, but both are red and inflamed. On account of the weak heart, whisky was given freely. Hoarseness increased so much that intubation was considered. Dr. Joseph O'Dwyer was called in consultation at 5 p. m. Dr. O'Dwyer suggested calomel fumigations, ten grains to be sublimated every two hours for the first twenty-four hours, every three hours for the second, and every four hours for the third twenty-four hours, while the child was confined in a tent of blankets over his crib.

21st.—Nose and throat clean, breathes easier, and takes nourishment.

22d.—Steady improvement.

23d.—Made last visit; case convalescent.

CASE III.—Boy, about four years old. Seen with brother physician on January 21, 1893. History of the case: Child has been sick about a week with scarlet fever; at present there is a profuse rash over the entire body. Throat, tonsils, and pharynx very much swollen and injected; very foul, grayish membrane covering nearly the entire surface; nose completely blocked by a similar membrane. Temperature between 103° and 104°; pulse very rapid and weak.

Diagnosis.—Diphtheria complicating scarlet fever.

Prognosis.—Very bad; recovery not expected. Doctor has been using all the remedies, including peroxide of hydrogen, without any appreciable benefit. I suggested the use of therapol, to be used on a swab for the throat and to be injected into the nose. Saw the doctor after a few days, and he said that the therapol had promptly cleaned off the membrane from the throat and nose. Child recovered finally. In addition to the local treatment, the doctor had used every means for keeping up the strength of the child and combating the disease.

CASE IV.—Flora K., two years of age. First visit on February 14th. Has been sick two or three days with croup. Child is running around the room, stopping every little while to lean up against a chair to rest; inspiration crowing can be heard in the adjoining room. Examination shows gland of the neck swollen, tonsils swollen, follicles are full, pharynx red and swollen; nose is fairly free, though somewhat occluded.

Diagnosis.—Tonsillitis, pharyngitis, and laryngitis; probably diphtheritic, although no membrane has appeared, but from the fact that her sister had just died of diphtheria after only three days' illness and lay in the next room, it is pretty sure to be diphtheria. Her mother said that the membrane had formed in the nose and throat of the sister, and finally suffocated the child, who had had croup-like this one.

Prognosis.—Doubtful.

Treatment.—Calomel fumigations, as recommended by Dr. O'Dwyer in preceding case, poultices to the neck, therapol applied locally every hour with a swab to the throat, and the nose syringed every three hours with Carl Seiler's antiseptic pastils in an aqueous solution. Disinfectants and steaming were also used. Convalescence followed. Child entirely recovered by the 19th.

CASE V.—Ida B., aged four years, was taken sick on April 21st; was seen on the morning of April 22d. Child feverish, face flushed; temperature was not taken. Inspection of throat shows pharynx deeply inflamed, both tonsils swollen so as nearly to meet, and covered with a very thick, grayish membrane. Child can breathe through the nose, but breathing is very difficult. Glands behind angle of jaw swollen.

Diagnosis.—Diphtheria.

Treatment.—Similar to the other cases. The administration of the iron solution every hour, swabbing the throat every half hour with therapol; injection into the nose of small quantity (fifteen to twenty drops) every two hours. The use of the disinfectants for the atmosphere—chlorides and turpentine in boiling water. Case progressed slowly; membrane cleared off from right tonsil by the 25th. The nose was clear at this time, but, some hoarseness developing, calomel fumigations were resorted to.

April 26th.—Not quite so hoarse; calomel continued. Right tonsil clean.

28th.—A. M., patch very thin on left tonsil. At 3.30 p. m., only a little spot left. Patient was from this time much easier. Fumigated once in four hours; therapol used once an hour instead of every half hour. After the 26th the child was only awakened every hour at night, when she was given iron, and then the throat was swabbed and nose injected with the therapol. Nothing to drink was given for fifteen to twenty minutes after

using the therapol, in order to have its local action as long as possible.

30th.—Child convalescent. She recovered completely.

CASE VI.—Ida D., aged five years. First call April 25th. Child was taken sick on the 23d. On the 24th the mother noticed patches in the child's throat.

April 25th.—First visit. Found the child's throat badly swollen, the tonsils and soft palate covered with a grayish membrane; cervical glands very much enlarged and painful. Child feverish, face flushed, and pulse rapid.

Diagnosis.—Diphtheria.

Treatment.—Iron solution internally and the therapol locally every hour alternating; turpentine mixture in boiling water also used, and disinfection with chlorides fully carried out. In the evening nose completely stopped up; right tonsil somewhat cleaner; left has a dark-greenish patch. Same treatment was continued; in addition, the therapol was injected into the nose every hour.

26th.—Tonsils clean below, but upper part of the throat looks about the same. The child's throat continued to improve more rapidly than her nose did. The nose was not completely clean until May 2d. Discharge from the nose was the foulest discharge I ever saw, and the odor from the patient's throat was offensive until I began the use of the therapol. The injection into the nose was kept up day and night. The nose bled very frequently and the therapol acted as a styptic to check the bleeding. The therapol was the only thing that seemed to relieve the nose at all. An alkaline antiseptic solution was tried at the commencement, but, as it only produced pain and did not have any effect upon the discharge, therapol was substituted. One of the beauties of therapol is that it can be used with children of any age, injected into the nose; and the throat is also reached without causing any suffering whatever; its use is absolutely painless. Children that are old enough to talk say that it does not hurt them at all.

CASE VII.—Blanche D., sister of the above-named patient, was taken sick April 27th. Treatment the same as foregoing. The patches did not form on her tonsils, but on the posterior wall of the pharynx, which, as far as one could see, was covered with patches, grayish white in color. Her nose was free, but, in order to prevent nasal complication, the treatment was carried out as in her sister's case, with the result that her nose at no time was affected, and the membrane did not reach further down the throat, but was kept right at that one spot until it was finally cleared off. She was entirely recovered by May 4th.

Summary of Treatment.—When possible, choose a medium-sized, well-lighted room that can be shut off from the rest of the house.

Ventilate the room by having a window open top and bottom at least three inches (more if possible).

Remove all useless furniture. Exclude all visitors. Allow only parties taking care of patient to remain in the room.

Disinfection.—Make a ten-per-cent. solution of Platt's chlorides in water. With this solution freely sprinkle the floor and bedding and keep some standing in the vessels used by the patient for purposes of defecation and expectoration. Handkerchiefs and all clothing from the patient are to be soaked in the above solution or boiled at once for half an hour. Hang up several towels, wrung out of the solution, on cords stretched across the windows and doorways. Every two hours pass through the room waving one of these dampened towels, so as to thoroughly disin-

fect the atmosphere. Keep the air of the room moist and saturated with turpentine vapor by having a pan of water constantly boiling on a gas or oil stove and adding to the boiling water every hour or oftener a teaspoonful of spirits of turpentine, or the following formula may be used instead:

R Menthol..... 3 ss.;
Acid. carbolic..... 3 iv.;
Spts. terebinth..... 3 iv.

M. Sig.: One drachm every half-hour or hour, in the boiling water.

The diet must consist of milk, beef tea prepared from fresh meat, eggs, and later the farinaceous foods, as rice, farina, and corn starch.

Medication, Local.—For the local treatment of diphtheria nearly everything having an antibacterial action has been tried, yet the death rate remains about the same, varying not far from thirty-three per cent.

The seven cases just mentioned are all that have come under my treatment during the past winter, consequently no fatal cases are suppressed.

Cases II, III, IV, V, and VI I expected might prove fatal, and so informed the parents, but, fortunately, none of them terminated in that way. I can only attribute this good result to thorough ventilation, disinfection, and the powerful local antibacterial action of an ozone preparation called therapol. Therapol is a vegetable oil carrying ten volumes per cent. of ozone, according to the analysis of Professor Witthaus. It does not attack healthy tissue, therefore causes no pain. Being perfectly unirritating, it can be applied to the most sensitive mucous membrane without causing discomfort. Consequently a child's throat may be swabbed and its nose syringed every half-hour if necessary. As there is no suffering, there is no screaming or struggling, so exhausting to the child when it has no strength to spare.

To apply the therapol to the throat, a swab made of a pine splinter six inches long, wound with absorbent cotton on one end, answers every purpose. The cotton is to be thrown away after using and the stick kept in a solution of carbolic acid.

To syringe the nose, use a blunt, conical-pointed glass syringe holding about one drachm.

Inject from fifteen to twenty minims of the therapol into each nostril of the child, keeping the child on its back. This favors the running of the ozonized oil back into the throat, securing thorough disinfection of the entire nose and throat.

Small children will swallow the oil that reaches the throat, but, as the oil is not injurious, it does no harm; it is rather the reverse, and will help to keep the stomach aseptic.

In addition to the therapol it is well to have the older children gargle with the usual iron mixture:

R Tr. ferri chlorid..... 3 j to ij;
Glycerin..... 3 iv;
Sat. sol. potass. chlor..... 3 iv.

M. Sig.: 3 j gargle.

The foregoing comprises the local treatment in cases where the nose and throat are involved. By it the mem-

brane will be dissolved and removed in from eight to forty-eight hours, depending upon the severity of the attack. The nose can be kept free if uninvolved; but if already infected, can be cleaned out in about the same time as the throat.

In those cases where the larynx is involved, in addition to the foregoing treatment, calomel fumigations, as recommended by Dr. O'Dwyer in Case II, must be used.

The symptoms that call attention to the larynx are hoarseness, loss of voice, croupy inspiration. In order to detect any hoarseness get the child to speak, if old enough; if too young, notice how it cries.

At the very first symptom (hoarseness) lose no time, but begin at once the calomel fumigation.

Ten grains of calomel should be sublimed every two hours for the first twenty-four hours, every three hours for the second, and every four hours for the third twenty-four hours.

Nothing elaborate is needed to carry out the fumigation. With a woolen blanket construct a tent over the child, in a crib or bed or on two chairs (placed front to front, with a pillow on the seats for the child to lie upon, and a broom handle across the top for a tent pole).

Under the tent place a small alcohol lamp in a deep dish, across the top of which a strip of tin three inches wide is laid. Upon the tin place the calomel, and so adjust the flame that it will take about eight minutes to vaporize the calomel. Leave the child under the tent for five minutes longer.

The first fumigations will prove the most difficult. The child will scream and try to get away, but by coaxing or having a member of the family go under the tent with the child, the fumigation can be carried out successfully.

It is remarkable what relief follows the fumigation. After the first battle the children usually go to sleep while under the tent.

If, in spite of every measure, the larynx becomes so filled up as to obstruct inspiration to any extent, intubation must be performed and the same treatment continued.

Constitutional Measures.—Besides every means for keeping up the strength of the patient by concentrated nutriment, nothing gives any better satisfaction than the iron, glycerin, and potash solution before given. It has a powerful astringent local and a tonic constitutional effect. A drachm of the solution may be given every one or two hours.

Whisky judiciously used is a sheet anchor in tiding over critical cases with threatened heart failure. It must be given in sufficient quantity to produce the desired effect without much reference to the age of the child. It is astonishing what quantities children need.

In Case II, a delicate boy four years and a half old, at one time took a teaspoonful of old Pepper whisky every half-hour for one night. This only served to bring a weak, rapid, irregular pulse of 130 per minute down to a full regular pulse of 90 and keep it there. The following day the interval of time was doubled, and then finally the stimulant gradually stopped in the course of three days, and Tokay wine substituted.

Do not give whisky unless indicated, but when necessary use it freely.

One or two injunctions in closing: Keep up your treatment day and night; in no case let an anxious parent's solicitude for its child's sleep interfere with your treatment. The child will sleep, but the bacilli are wide awake and the formation of ptomaines and membrane goes on uninterruptedly.

Another thing: Remember diphtheria is a giant. Do not waste valuable time in feints, but deal it as many and fast "knock-out" blows as possible.

316 EAST EIGHTY-SIXTH STREET, NEW YORK.

REPORT OF TWO AUTOPSIES

ILLUSTRATING THE COMPLICATIONS OF CARDIAC DILATATION.

By A. L. BENEDICT, A. M., M. D.,

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CASE I.—Mrs. K., aged forty-five, had been treated at the Fitch Dispensary for some three years for valvular disease of the heart with dilatation. She was a washerwoman of good habits, but overworked for several years. In the winter of 1891-'92 she was sent to the General Hospital, where her uterus was curetted on account of granular endometritis, and a lacerated cervix and perineum restored. For several months afterward she was under the care of a medical student, who kept her on various cardiac tonics. About two weeks before death I was asked to take charge of the case again. It was evident that death was imminent, and a careful examination was impracticable. The heart was dilated, aortic direct and aortic regurgitant murmurs were heard as they had been at the dispensary, and apparently a tricuspid regurgitation was also heard. The word *apparently* is inserted not because of any departure of the murmur from the typical description, but because I would not make a positive diagnosis of any such uncommon condition without the verification of an autopsy. Later moist râles were heard in the lungs, and there was some dullness posteriorly in the lower lobes. The patient required most careful feeding with liquid and, to some extent, predigested foods. Chronic gastritis was diagnosed. It was an open question whether the venous stasis in the liver and kidneys had resulted in an actual inflammation or not.

The post-mortem section was made by Dr. W. H. Bergtold, twelve hours after death. Rigor mortis marked; body fairly well nourished; about one centimetre of preperitoneal fat; some oedema of the abdominal wall. Diaphragm reaches the level of the fifth rib on right side, sixth space on left, showing that there is no particular displacement of the viscera.

Anterior edge of right lung slightly adherent; adhesions more marked posteriorly; very firm at apex. Left lung universally and firmly adherent. Both lungs cedematous, particularly the right. Little injection or other evidence of active hyperæmia or inflammation.

Apex of heart at sixth rib; outer border of heart one or two centimetres to the left of the nipple line. Visceral pericardium thickened into a milk spot, about two centimetres in diameter. Several petechiæ on heart. Pulmonary valve normal, artery admitting two fingers. Aortic leaflets thickened and calcified; aorta extensively atheromatous. Tricuspid leaflets hypertrophied; orifice dilated. The mitral valve has a short left leaflet and a long right leaflet. Both leaflets somewhat thickened. Some fatty degeneration of the papillary muscles, of one in particular. One papillary muscle has its attachment to the inter-

ventricular septum, near the aortic valve. Left ventricle, one centimetre and a half in thickness, about normal. Right ventricle, four to seven millimetres in thickness, in most places normal, but in some spots much thinner. The heart, without blood, weighs five hundred and fifty grammes. No ante-mortem clots, coinciding with the statement of the family that death was quite sudden at the last.

Liver of about two thirds the normal size, firm, mottled, and beautifully nutmeg in appearance. It is cirrhotic, with marked fatty infiltration.

Spleen hard and lobulated, with evidence of old perisplenitis gluing the lobes together and extending inward so as to cause thickening of the trabeculae.

Little perinephritic fat. Left kidney almost "floating." It is "pig-backed"—a shape which Formad has connected with the chronic congested kidney of drunkards. In this case there is not the history of alcoholism, nor is marked congestion noted post mortem. The capsule strips with considerable difficulty. The right kidney is smaller, more congested; the capsule strips harder. Diagnosis: Chronic diffuse nephritis.

Stomach shows chronic catarrh, with moderate dilatation; atonic, not obstructive. Slight ascites.

The pelvic organs are normal, except for the evidences of the operative interference and a relaxed state of the ligaments, with slight uterine prolapse.

CASE II.—B. M., aged forty. The patient was first seen by me a month before death. He was then suffering with broncho-pneumonia, with a history of cough and general prostration of several months' duration, so that the tentative diagnosis of phthisis was made. The heart was somewhat enlarged, and there was a mitral regurgitant murmur, but the pulse was fair, the capillary circulation good, so far as could be judged from the appearance of the skin, and compensation seemed to have been effected for the valvular leakage. The broncho-pneumonia soon cleared up, except that a slight bronchial catarrh remained. The weakness persisted without assignable reason. At midnight of March 1st the patient unexpectedly died. No physician was present, but death was so gradual that the relatives could not tell whether it had occurred or whether the man was in a trance.

Autopsy sixteen hours after death; section by Mr. Jennings, C. M. Body well nourished; rigor mortis marked; fat abundant, but not excessive; no significant external markings.

Left lung everywhere adherent, very much congested and œdematous; slight bronchitis. Right lung free, not so much congested, but more œdematous.

There is a considerable deposit of fat in the pericardium, which is otherwise normal. About 75 c. c. of serum in the pericardium. On the right ventricle there is a white patch in the shape of an isosceles triangle, 4×2 ctm., indicating a former pericarditis. Cardiac apex rounded; ventricular walls hypertrophied and moderately dilated. The right auricle is enormously dilated and thin, containing a white clot as large as a hen's egg. The tricuspid and pulmonary valves are normal; the posterior leaflet of the mitral valve irregular in outline from an old endocarditis (there was a mitral regurgitant murmur). Marked calcareous degeneration in one of the pouches of Valsalva, and some atheroma of the aorta, but without calcareous deposit. These aortic lesions are not so situated as to cause a murmur. Ante-mortem clots in all the heart cavities, corresponding with the history of slow death.

Liver slightly enlarged; nutmeg; slight fatty infiltration, becoming marked posteriorly on the left lobe. Gall-bladder full of bile and inclosed laterally by the liver, instead of lying in a shallow groove beneath it. This condition is probably due to the downward growth of the liver.

Kidneys of normal size, somewhat lobulated, and congested. Capsule strips with some difficulty, but without tearing off the renal tissue.

Spleen small and tough, presenting superficially a triangular area about 2 ctm. in diameter of dense white tissue supposed to represent an old infarction.

Colon small and contracted. Intestine otherwise normal.

Contrary to expectation, the stomach shows no marked lesion.

These two cases illustrate the closing scene of cardiac dilatation due to valvular disease. We may assume the other lesions to be sequela. Just why these patients should have had endocarditis is not apparent. Neither gave a history of rheumatism, except as that word applies to the vague aches and pains in the limbs which most laboring people, and indeed others, have. In both, whatever renal disease existed was apparently the result, not the cause, of the heart trouble, and there was no evidence of arterial fibrosis to indicate a combined circulatory and renal lesion. Without the history of any distinct toxæmia we may ascribe the endocarditis to the dyscrasia which accompanies overwork and exposure. At the same time it must be acknowledged that the priority of the cardiac lesion is merely a hypothesis resting on the absence of proof of the contrary time relation.

The first patient lived at least three years with a double aortic lesion; during most of this time she was doing housework, and she made a good recovery from a moderately severe gynecological operation. Her tricuspid regurgitation was a late development. It seems that life was prolonged to the extent that vitality and medication could withstand adverse circumstances. The second patient died unexpectedly; his murmur was only a mitral regurgitant, apparently quite well compensated for. The enormous dilatation of the right auricle can scarcely be regarded as directly due to the mitral lesion, since the intermediate valves were intact. I am inclined to think that the long-continued lung trouble was the direct cause of the auricular dilatation, and that the latter was the real cause of death. Clinicians throw little light on auricular disease. H. C. Wood states that when digitalis is theoretically indicated it sometimes fails to do good, or actually increases the bad symptoms on account of increasing the strain on a dilated auricle. In the case cited, heart tonics were not much used, simply because they did not seem to be indicated. The post-mortem explanation of the vague precordial pains and of the prostration of a man apparently fairly strong and well nourished is an interesting lesson, yet it affords little information as to the conduct of another similar case.

An elaborate discussion of the relation of the various lesions found in these two autopsies to the cardiac disease would be a more than twice-told tale, yet I wish to allude briefly to this point. In both patients there was pulmonary congestion with almost inevitable catarrh and, as death approached, œdema. In both, the left lung was firmly adherent, the right lung relatively free; and in both the free lung was the more œdematous. The broncho-pneumonia of the male patient, although predisposed to by the con-

gestion of heart disease, seems to have been due largely to exposure to cold.

In both cases are noted the effects of venous engorgement of the kidneys. In the male patient the irritation of the venous blood had just begun to cause interstitial growth. In the female the tearing off of renal parenchyma with the capsule shows a more marked interstitial inflammation. To call the lesion *diffuse nephritis* is simply a recognition of the fact that it is scarcely possible to find a chronic diseased process which involves one histological part of an organ without affecting contiguous tissues.

Both spleens were small. According to the dictum of the late Henry F. Formad, we can never have intestinal disease without a marked increase in the size of the spleen. In the present cases the intestines showed no lesions except that in one the colon seemed smaller than usual, even after allowing for post-mortem contraction. This would be readily explainable as an atrophy from comparative disuse. The old perisplenitis and the possible infarction are common lesions—so common that they seem to have comparatively little clinical significance.

The livers, like the kidneys, show different stages of the same process. In the male was found a chronically congested or nutmeg liver, somewhat large, with no interstitial change demonstrable macroscopically, with fatty infiltration just beginning. In the case of longer duration the nutmeg appearance was still noticed, but the organ was plainly cirrhotic, the interstitial tissue had contracted so as to reduce the liver to two thirds of its normal size, and persistent suboxidation was evinced by the well-marked fatty infiltration which so generally accompanies cirrhosis.

In the stomach of the male patient moderate catarrh was expected; but, if present, it was not sufficient to be distinguished from the gray, slimy appearance of a normal stomach examined several hours after death. In the other case chronic gastritis, which so frequently results from the backing up of venous blood, was conspicuous. With it was found a moderate degree of dilatation not due to mechanical obstruction, but to atony of the organ.

In neither case was there marked dropsy; one patient dying too early, the other escaping it largely on account of rest and medication.

174 FRANKLIN STREET.

THE THERAPEUTICS AND TREATMENT OF THE URIC-ACID DIATHESIS.

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SOME authorities state that there are no recognized symptoms of a definite kind to warrant the term "uric-acid diathesis," but this I venture to question. I will begin my remarks on this subject by the unusual course of prefacing them with the symptoms of two cases recently under my observation, and I hope to be able, in part at least, to prove that my right to question the above assertion is not wide of the mark.

CASE I.—E. F., girl, aged ten years, thin and neurotic, complains daily of frontal headache, frequent pain in region of kid-

neys, also of bladder. Restless at night, often grinds her teeth, has a small appetite and is very particular about her food, and the food she prefers is of very poor nutritive quality. She is often very bright and happy, but as often dull and depressed. She easily "takes cold," and frequently has a chill, which generally precedes the symptoms above mentioned. She has a deep, hollow cough; her eyelids are at times cedematous and feet cold; has also chronic enlargement of the tonsils; very little exertion causes profuse perspiration. She is also persistently constipated. The family history reveals gout for several generations on the paternal side. An examination of the urine during these attacks shows a high specific gravity; there is an excessive acid reaction, with sometimes a trace only of albumin; at other times a considerable amount. The microscope revealed uric-acid crystals in quantity. During the attacks there was a frequent desire to micturate, and this probably is attributable to the irritation caused by the uric acid. The faces were generally of a very dark color.

CASE II.—A typical case of a man aged thirty-five years; general appearance plethoric; subject to flushings and severe congestive headaches, described as a "fullness in head and like to burst." At other times the headache is like hemieric neuralgia. There is a dark, almost black shade beneath the eyes, and sometimes on inner half of upper eyelids and side of upper part of nose. There is slight "bagginess" beneath the eyes, and the skin there is easily pinched up, which distinguishes it from Bright's disease in this particular point. The appetite always good, but frequently discomfort in the epigastric region after food. Considerable flatulence, causing sharp pain in cardiac region. Constipation; faces dark in color; dull, aching pain in lumbar region, sometimes also in bladder. A frequent desire to micturate. Urine sometimes clear, sometimes dark and muddy. A feeling of lassitude and drowsiness relieved by active exercise. Such are the symptoms in a child and in an adult having the uric-acid diathesis.

Let us now, in brief, consider what uric acid is. It is a bibasic salt—that is, it contains two atoms of a replaceable hydrogen. The formula for it is $H_2(C_2H_2N_4O_3)$, or, more simply, H_2u . It forms three regular orders of salts—namely, neutral urates (formula M_2u), and urates or bi-urates with the formula of MHu , and quadri-urates. The neutral urates have lately been by some authorities brought prominently forward as the cause of gout. Sir William Roberts has, however, in a recent able article, disproved this theory in the following practical manner: He says: "The neutral urates can only be produced in the presence of caustic alkalies and in the absence of carbonic acid and the carbonates. But caustic alkalies can not exist in the living organism, and carbonic acid and the carbonates are everywhere present. It would therefore seem impossible that the neutral urates should ever play any part in the physiological or pathological history of uric acid, and until it can be demonstrated that the salts do actually exist in the body, or at least that they can be formed under conditions which are known to be possible in the living body, it is futile to frame theories in which these compounds are made to intervene. With these remarks the neutral urates may be absolutely dismissed from our consideration as having neither part nor lot in the vital history of uric acid, whether in health or in disease." Such remarks from such an eminent authority may be considered conclusive. Although bi-urates are known pathologically as constituents of gouty

concretions, yet they are not known with certainty as physiological constituents either of the blood or urine. On the other hand, the quadri-urates are known to exist in human urine and that of birds and serpents. Roberts has proved that uric acid enters into solution in the first instance, not as neutral urates or as bi-urates, but as quadri-urates. In the healthy and those not victims to the uric-acid diathesis, the normal combination of uric acid with alkaline bases maintains its integrity for some time after micturition, as well as when passing through the usual channels. If, from some cause or other, decomposition takes place in the kidney or in the bladder, the uric acid is set free and deposited in the crystalline form; hence the well-known symptoms of gravel. We must not forget, however, that all acid urines, if guarded against septic influences, deposit uric acid sooner or later. We may ask what prevents the breaking up of the quadri-urates and the deposition of uric-acid crystals within the kidney and bladder? The same authority whom I have already quoted has recently made elaborate experiments on this subject. He concludes that there are certain inhibitory ingredients in the urine which prevent the breaking up of the quadri-urates; that this inhibitory power resided partly in the crystalloids of the urine; that the chief crystalloids are urea, the chlorides, phosphates, and sulphates of potassium, sodium, ammonium, calcium, and magnesium. Of these, he found that urea had no power to delay decomposition of the quadri-urates. The chlorides and sulphates, in the proportion of one per cent. and upward, had considerable power. The potassium salts, however, had more effect in preventing the decomposition than salts of ammonium and sodium; but none of them approached the natural urine in its power of postponing the decomposition of the amorphous urate. He found that dipotassic phosphate, in a 0.2-per-cent. solution, acted almost as slowly on the deposit as natural normal urine.

The pigments or coloring matters of urine undoubtedly have great inhibitory power. Urine that had been filtered through animal charcoal and so deprived of its coloring matter acted more quickly on the amorphous urate than the same urine before it was filtered.

Alkaline urine can never be the cause of gravel, nor can it cause the uncomfortable irritation of the urinary channels felt in the patient suffering from the uric-acid diathesis. We may also assert that a diminution of salines and pigments in the urine favors the precipitation of uric acid.

Seeing that in certain unhealthy conditions of the human body there is a decided tendency to precipitation of uric acid, it is of great importance to find out, as far as possible, some of the causes of the abnormal condition. We know that the children of the poor suffer far more in proportion than those of the better off from stone and uric acid. Their mode of living impoverishes the urine of its saline matters. They are fed principally on bread, gruel, and potatoes. These contain little mineral matter. They have only a small quantity of milk, meat, and fish. Now, we know that wheat flour only contains 0.51 per cent. of mineral matter, whereas meat and fish contain 5 to 5.50 per cent. of mineral matter in proportion to the totality of the dry substance. The same may be said to be the cause of so

many cases of stone found among the natives of India, who live chiefly on rice. It has been shown that sailors, from the amount of salt provisions they use, are singularly free from calculus. On the other hand, we find men in easy or luxurious circumstances suffering from the uric-acid diathesis. In their urine there is no want of either pigments or salts; still they suffer, often severely. This can only be accounted for by their having an excessive quantity of uric acid secreted. The quantity in the urine bears no constant relation to the rate of its excretion by the kidneys. The degree of acidity of the urine must exercise a power over the time of precipitation. The more acid, the quicker the precipitation. Knowing this, our object must be to render the urine less acid as quickly as possible. In prescribing a line of treatment, it is, according to Roberts and Garrod, very essential to differentiate between the gouty and uric-acid diatheses. Although many authors consider these complaints identical, such is undoubtedly not the case. We may find gout alternating with gravel in the same individual; but this does not by any means prove that they are the same disease. Uric acid appears in both diseases, but in different circumstances. In gout the trouble originates in the blood and tissues, and, according to Roberts, is deposited in a state of combination as a bi-urate. In gravel it occurs in the kidney, and is deposited in the urine in a free state. This is very necessary to know, as it may guide us in determining our line of treatment.

As we have already stated, we must endeavor in treating this disease to render the urine less acid as early as possible. I have also stated that it is impossible for an alkaline urine to deposit uric acid, or for a neutral or slightly acid urine to deposit it. In citrate of potassium we have a powerful agent to render the urine less acid, and, with the addition of benzoate of lithium, I have found in many cases that in from twenty-four to forty-eight hours I had neutralized the urine. But we know that gravel may last intermittently for months or even years, and we could hardly expect a patient to persist for weeks or months in taking alkaline doses. We must direct our attention to some other means, and those means must, as far as possible, be preventive, using the alkalies only on occasions where some error in diet, or some other cause, has increased the amount of uric acid.

Precipitation of uric acid may take place either in the kidneys or bladder. The results of the former are more serious than those of the latter, as any deposit in the bladder is washed out during micturition. We ask, How are we to distinguish between the condition of the urine as it is secreted by the kidney and the urine after it has been some time in the bladder? This is very important to know. Urine which has been in the bladder for some hours may, according to Roberts, have frequent changes from acid to alkaline, from dilute to concentrated, from richness to poverty of uric acid. To get, therefore, a correct knowledge of the urine as it passes through the kidneys the urine must be obtained and examined at short intervals. Roberts made some valuable experiments with the object of finding out a preventive treatment of urinary gravel. The following are his conclusions: That the char-

acter of the urine was most affected (1) by the digestion of food, (2) by prolonged fasting, (3) and by sleep. He found that *after* a meal, no matter of what it consisted, the acidity decreased and the amount of urine increased. Prolonged fasting, on the other hand, raised the acidity and diminished the flow of urine. During sleep, which was likewise a time of abstinence, acidity reached its maximum, and the flow of urine its minimum. The percentage of uric acid was greatest during the time of sleep, but the hourly secretion was greatest after meals. From what has been previously said, we know that the greatest risk of renal precipitation is during sleep, especially toward breakfast time.

We have seen from the foregoing that the acidity is most dangerously increased during sleep. To lessen the danger we must give some drug that will have the effect of counteracting the acidity. In my experience, I have found that a dose at bedtime, consisting of ten grains of benzoate of lithium and thirty or forty grains of citrate of potassium in half a glassful of water acts admirably. If, however, the acidity is very great, Nature steps in and makes the sleeper restless and finally awakens him. This means that the alkalinity has again been overcome by the acidity, and another dose is necessary. Although, as we have already seen from Roberts's experiments, the urine is less acid during the day when digestion is going on, it may be necessary to give one or two doses—the same as already mentioned—during the day. If, however, for some reason this dose can not be taken as often as might be necessary, the meals ought to be increased in frequency.

In the nocturnal enuresis of children I have found this to work admirably—viz., potash and benzoate of lithium during the day, and always something to eat at bedtime. No doubt many such cases are caused by uric acid irritating the bladder and kidneys. Our object in treating patients who have uric-acid diathesis is not so much to entirely prevent precipitation as to retard it till it reaches the bladder, when we know it will be washed out as a rule. I say as a rule, because there are those who suffer from atony of the bladder, either from chronic cystitis or paralysis, or who have enlarged prostate and can not entirely empty the bladder. To such patients I would not only prescribe daily and nightly doses of the alkalies mentioned, but also that the catheter be used frequently, and the bladder washed out from time to time with a weak solution of soda.

Fortunately, it is extremely rare for any patient to be troubled all the time with a tendency to precipitate uric acid. Therefore I would advise those who have suffered from it to curb their appetite, lessen the quantity of nitrogenous food taken, and use freely farinaceous substances, with salads, fruits, and garden vegetables. The subject of diet is a very difficult one, as some authorities say, "Avoid fruit, sugar, and fat"; others order fat in abundance and no starchy articles of diet. Roberts states that the most reliable investigations prove that sugar, fat, and starchy matters have no influence on the production or secretion of uric acid. The only point of real value made out by accurate investigation is that the excretion of uric acid is diminished by lessening the albuminoid ingredients of food, and increased by the reverse.

I conclude from the foregoing remarks that the principal efforts of the physician, when he has a patient suffering from uric-acid diathesis, must be to guard against renal precipitation of uric acid. If the means suggested in this paper for that purpose be intelligently carried out, the risk of attacks of gravel and even vesical calculi may be reduced to a minimum.

80 WARBURTON AVENUE.

REPORT OF A CASE OF OBSTETRICS.

By JOHN FRANCIS BURNS, M. D.,

ATTENDING SURGEON TO ST. JOHN'S HOSPITAL,
LONG ISLAND CITY, N. Y.

I was called to Mrs. W., aged twenty-eight, in labor with her fourth child, her three previous children having been extracted with forceps after tedious labors. Two had died as the result of forceps operations immediately after birth, and one subsequently, charged to the "result of operation."

Physicians in attendance at previous labors had attributed the dystocia to a contraction of the pelvic bones. I examined the patient and found a roomy pelvis, with os uteri one quarter dilated, but situated very far back and high up. The patient states that her womb is "always prominent," and that the liquor amnii has been scanty in previous labors. Examination confirms this, as there is marked anterior obliquity of the uterus. I expressed the opinion that there seemed no good reason why she should not be delivered of a child without the forceps, as the womb could be easily replaced, and after replacing and confining it I left subject to call, the pains then occurring at twenty-minute intervals.

I had hardly left the house when the pains markedly increased in frequency and force, and inside of a half hour she was delivered of a female child weighing nine pounds and four ounces, and whose cranial measurements exceeded the normal in all diameters. I reached the patient in time to assist in the expulsion of the placenta. The mother made a normal convalescence and the child remains healthy and strong.

The foregoing is but a leaf from the diary of a physician, and at first sight presents nothing of importance, but it serves to illustrate a very common error in obstetrics. It is certainly more than a coincidence that a woman should have to be delivered three times with the forceps and then have an almost spontaneous delivery of a very large child, especially after the correction of anterior obliquity. I can hardly entertain the idea of the influence of suggestion in connection with the result, although I am not unmindful of the influence exerted on the minds of patients in labor by these means.

It can readily be conceived upon scientific grounds why a complication of this character should render labor so difficult and result so fatally to the children. In the first place, the extreme tenuity of the abdominal wall prevents the auxiliary assistance usually obtained from this source, and the obliquity throws the force of the uterine contractions upon a portion of the child's body not in the axis of the pelvic canal. The relaxation of the ligaments also prevents the presenting part from engaging in the pelvis, and if the condition go unrecognized, the application of the forceps only increases the danger to the mother and child, as there must of necessity exist an acute angle at some part

of the child's body upon which excessive traction must be made. Again, it can readily be understood how such a condition would induce malposition in the presenting part. The prominence given in text-books (and even in more advanced works on obstetrics) to pelvic contraction as a cause of dystocia is no doubt largely responsible for the overlooking of the many other abnormalities that may cause it.

This case, to my mind, illustrates the necessity of a physician keeping in mind that there are two ends to the parturient canal, and the physician who keeps this in mind will have to apply the forceps much less frequently than he who only considers the bony outlet.

If this case is more than a coincidence it certainly proves that the error is a common one, for three physicians have successively failed in this one case. If the history of this case awakens interest in even one practitioner's mind to the importance of obliquities of the uterus as a common cause of dystocia, the object of the writer will have been attained.

A REPORT OF MY OWN CASE OF
DOUBLE TALIPES VARO-EQUINUS
OF THE SECOND DEGREE,
OPERATED ON BY PHELPS'S METHOD.*

By J. H. HUNTLEY, M. D.,
ALGER, OHIO.

I WAS born on April 11, 1851, with double talipes equinovarus. At the time of my birth I had an older half-sister with a similar deformity. We were both children of the same father, but not of the same mother. Notwithstanding that both cases were congenital, there was no hereditary cause in the family history on either side.

Nothing was done to correct the deformity in my case until I was in my sixteenth year, when I undertook to have an operation on my own responsibility. Dr. M. did the operation in May, 1867, by dividing, subcutaneously, the tendo Achillis, the plantar fascia, the tibialis anticus, and the tibialis posticus. He manipulated the feet and made an effort to put on a straight shoe with brass soles and steel side-braces running above the knee. This treatment was both very painful and inefficient. After I had worn them for about a month an aneurysm formed on the left foot in the posterior tibial artery. An operation was done by the same surgeon to relieve the enlargement by ligating the artery above the aneurysm. In about seven days secondary hæmorrhage set in, and I came near bleeding to death. Another operation was now done higher up by cutting down on an artery which was not found. I was placed on my back and my foot swung up at an angle of forty-five degrees, and kept in this position for twelve days until all danger of hæmorrhage was past.

I did not move with my feet until the next spring. I then went to an orthopaedic institution in Charleston, Ill., under the charge of Dr. H. R. Allen. I was there operated on by subcutaneous tenotomy of the same tendons as before and his clubfoot shoe put on, which is a modification of the Sayre shoe. I wore these shoes three years, and then returned to the same man at Indianapolis, Ind., and had the tendo Achillis divided again and a new pair of braces applied. I wore these for about two years, and then quit wearing a brace on the right foot, but kept it on the left. In my right foot I still had a tense plantar fascia and

tendo Achillis, and could not walk barefooted or get my heel down, but had to pad it up with cotton. In the winter of 1876-'77 I was at the Michigan University attending medical lectures, and Professor McLean thought the Sayre rubber-muscle method would help me. He applied the rubber tubing on the outer side of the leg to take the place of the peronei muscles, and also applied the interrupted current of electricity to the atrophied muscles. This was continued for three or four months without any benefit. I then gave up the idea of ever having anything more done. But in the mean time I consulted several good surgeons; among them was Professor Gunn, of Chicago. They all told me to let them alone.

In 1890 I read an article on Phelps's method by Dr. A. M. Phelps, of New York. I was well pleased with the method, and resolved to see him and make another trial, as I was getting worse as I grew older. I felt determined to have an operation by the open-incision method or have a Pirogoff amputation on the left foot.

I went to the Post-graduate Hospital and was operated on February 24, 1892. Fig. 1 represents the condition of my feet at that time.

Dr. Phelps did his ordinary operation for talipes equinovarus without doing any bone operation. The left foot required a lever force of nearly fifteen hundred pounds to bring the foot into position and bring the heel down. In ten weeks I was able to assume my duties as a physician, and there has been no tendency to relapse, but a steady improvement during the ten months that have elapsed since the operation. I stand well on the bottom of my feet and perform my labor with more comfort by one half than I ever dared to hope. Fig. 2 is from a recent photograph.

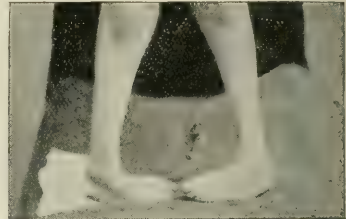


FIG. 1.



FIG. 2.

RHEUMATISM

AS A CAUSE OF PARTIAL DEAFNESS, WITH TINNITUS.

By J. H. VADAKIN, Ph. G., M. D.,
BETHANY, ILL.

HAVING recently read with pleasure an article in your valuable journal on The Rheumatic Throat, I thought it might be of interest to some of our profession to read a report of a case which recently came under my observation and treatment:

A widow, Mrs. W., aged about thirty-five years, the mother of one child aged fourteen years, came to me for treatment for rheumatism, stating also that she had been hard of hearing for

* Read before the Section in Surgery of the New York Academy of Medicine, May, 1892.

a number of years. She had just recently come here from England, where she had been treated for her ear trouble without any relief. When I was called to see her she had just been brought there to her sister's house from a city a distance of about one hundred miles away, where she was employed as head cook in a large family. She was terribly emaciated, suffering the most excruciating pain, total anorexia, and, to say the least, she was in a most deplorable condition. She said her father and mother were both rheumatic, and that she supposed she had inherited her trouble from them. The rheumatism had troubled her very little. When she noticed the ear trouble she consulted a physician for tinnitus before she did for rheumatism. On physical examination, heart and lungs were found normal, bowels constipated, joints all puffed and tender. I put her on the following treatment. She improved very rapidly; in fact, after the first two doses she said her pain was entirely gone. She began to eat. She had been vomiting everything she ate or drank; this stopped immediately. She went right on and made a rapid and uneventful recovery.

R Sodii salicylat. ʒ ij;

Aquæ dest. q. s. ad ʒiv.

M. Ft. sol. Sig.: Teaspoonful every four hours until easy, then reduce gradually.

R Tr. ferri chl. ʒ ij;

Syr. limonis. ʒ ij.

M. Sig.: Teaspoonful every four hours until easy, then reduce gradually.

R Fl. ext. cascara sag. ʒ ij;

Elix. simplicis. ʒ ij.

M. Sig.: Teaspoonful as often as needed to move bowels regularly.

R Hydrogen peroxide. ʒ j;

Listerine. ʒ j;

Aquæ rose. ʒ iv.

M. Sig.: Use with syringe in ears three times a day.

In examining the ears, I found the external auditory meatus filled with a dark, thick, tar-like substance, which I cleaned out with absorbent cotton wound on the end of an applicator, and then used the above wash. She returned to her place in about six weeks and has remained well ever since. This is about eighteen months after she began treatment. She continued the treatment about four months. Since treating the above case I have recently treated her daughter and an older sister for rheumatism, with good results in both cases. The urine in all three cases was loaded with uric acid, showing its presence both microscopically and chemically.

The late Professor Peter, of Paris, who died last month at the age of sixty-nine years, was a striking example of the few men who achieve success and renown in the face of unusual difficulties. It appears from a memoir of him written by M. Jules Rochard, published in the *Union médicale* for June 13th, that his early career was that of a typesetter, that he was thirty-five years old when he obtained his medical degree, and that it was not until twenty years later that he became a professor.

The Medical Society of the County of Otsego, N. Y., will hold its annual meeting at the Court House in Cooperstown on Tuesday, the 18th inst. The programme includes the following papers: Typhoid Fever, by Dr. E. E. Dye (the discussion to be opened by Dr. P. K. Strong); The Management of the More Common Diseases of the Eye, by Dr. A. H. Brownell; and Cholelithiasis, by Dr. L. H. Quackenbush (the discussion to be opened by Dr. J. H. Moon).

The Death of Dr. James J. Levick, of Philadelphia, is announced in the *Medical News* as having taken place on June 25th. The deceased was sixty-eight years old.

THE NEW YORK MEDICAL JOURNAL,

A Weekly Review of Medicine.

Published by
D. APPLETON & Co.

Edited by
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, JULY 15, 1893.

THE DECLINE OF SCARLET FEVER.

THE medical profession on each side of the Atlantic has been interested to observe a diminished mortality and sickness-rate of scarlet fever. Our English brethren are already engaged in inquiries as to the causes of this decline. The *Medical Press and Circular* for April 26th takes up the subject by comparing the mortality in England in 1881, when 14,275 deaths from that disease were registered, with that for 1891, when 4,956 was the total. The Registrar General's Report for 1891 pointed out the fact that the scarlatinal mortality had not reached so low an ebb since the laws of registration went into operation. This is true not only when taken proportionally to the population of the country, but absolutely. During the seven years ending in 1891 the deaths never reached 8,000 in any one year, and the average annual total was only 6,458, while in no previous year, except 1884, had there been fewer than 11,000 deaths from this cause. Dr. William Ogle, the medical head of the General Registration Office, has been greatly impressed by watching "this large and long-sustained diminution in the mortality from scarlet fever as one of the most curious facts in our death statistics, and as yet without adequate explanation."

According to Dr. Ogle, there are three probable influences that have contributed toward the result, but neither he nor the readers of his report can accept them as sufficient causes. In the first place, he finds that the birth-rate of England shows a material decline in the last decade, in consequence of which the proportion of children to the population—that is, the proportion of individuals most liable to suffer from scarlet fever—had undergone a marked reduction; but this can be numerically estimated on the bases of high and low birth-rates, and it will be found that a reduction of seven per cent. only in deaths by scarlet fever can thus be accounted for.

In the second place, there has been a number of sanitary undertakings at work in the direction of a reduced scarlet-fever mortality, not the least of which has been a growing enforcement of isolation of the sick in the infectious-disease hospitals. For example, in and about London, more than half the deaths from this cause now take place within the wards of the fever hospitals, whereas in 1878 not more than seven per cent. of such deaths occurred in hospitals.

Thirdly, the scarlet fever of to-day is of a milder type than that of ten years ago. The evidence to corroborate this view is obtainable from the Registrar's statistics in the fever hospitals; from 1874 to 1878 the average mortality in every hundred patients in those hospitals was 12·88, while in the years from 1887 to 1891 it was 8·56. This harmonizes with the gen-

erally expressed experience of the profession that there is a diminished virulence in scarlet fever. This renders plausible the proposition of those who believe that scarlet fever has been passing through a modification of type, but just how it is caused and how much further it may be expected to extend remain to be explained. Whether the disease has reached the end of its tether, as was the case with leprosy in England and France in the fifteenth century, or is simply acting in alternation with epidemic influenza, as some think, is a question not easy to solve in our present knowledge of epidemiology. Dr. Ogle's opinion is that epidemics of scarlet fever will not soon, if ever, again be the scourge to infant life that they have been. This hopeful view is based on the knowledge that he has, as an official, that the public-health laws have been administered with a growing efficiency, and that the best results are now being felt from processes of sanitation, such as drainage, water-supply, and the like, that require years for their building up and years for their full fruition. In proof that sanitation is at work in this beneficent way, there is adduced the fact that the mortality from typhoid fever is, almost year by year, showing great reduction. The lowest death-rate from that cause ever shown for England was that of 1891, and the same seems to be the case with reference to typhus fever and simple (or non-defined) fever, during the same period.

A CONGRESS OF NONOGENARIANS AT PARIS.

THE editorial staff of *La Science médicale* has undertaken to convene, for scientific purposes, a considerable number of aged persons. No distinction as to nationality will be made in regard to old people who are provided with documents proving that they have passed the age of ninety years. Expenses of traveling and lodging at good hotels are to be defrayed by the medical committee in charge of the affair, and the well-being of the delegates will be cared for during their stay at the congress. Three gold medals will be awarded, one to the oldest, one to the strongest, and one to the most intellectual. Although there are supposed to be not fewer than two hundred centenarians in France, the presence of a few only of them may be expected; by far the greatest number of them reside in the departments that skirt the Pyrenees. It is supposed that the congress will have for its president Dr. De Boissy, who practiced medicine at Havre for seventy years. He was born in April, 1793. Dr. De Boissy is still vigorous, and not long since read a scientific paper before a public meeting. The convention will be called to order on July 25th at the Palais des arts libéraux.

MINOR PARAGRAPHS.

"LABORATORY CHOLERA."

A CASE of prompt identification of cholera by bacteriological tests has been reported in a recent number of the *Deutsche medizinische Wochenschrift*. It was a case of what the Germans call *Laboratoriumscholera*—that is, one of accidental infection occurring in an assistant in a pathological laboratory. The reporters are Dr. Freymath and Dr. Lickfett. They were

enabled to arrive at a bacteriological diagnosis of the case in about six hours after the symptoms caused them to suspect that choleric infection had taken place. The patient, a laboratory attendant, aged twenty years, fell sick with diarrhoea and pains in the abdomen on April 11th. A little later, rice-water discharges were reported. On inquiry, it was found that, on the 7th or 8th, the man had perhaps undergone exposure to infection by cholera at the laboratory. On the 12th the comma bacilli were found to be numerous; there were spirillum forms, s-forms, cocci, and straight bacilli. Cultivation of the bacilli was practiced in a nutrient medium, and colonies were obtained showing the characteristics of the comma variety. Cover-glass preparations of these growths were fixed and stained with Ehrlich's gentian-violet, and were seen to consist of the comma bacillus solely. This confirmation was obtained in six hours and a half after the infection had been suspected. The further growth of the colonies and the behavior of stab-cultures were confirmatory of the diagnosis of cholera. The patient's stools were examined daily for two weeks and over, but there were no colonies observed after the 16th. The promptness of the bacteriological measures adopted enabled the physicians to report their case to the authorities without delay, and this in turn led to speedy official disinfection and isolation.

FORMANILIDE.

THE *Medical Week* for June 30th gives a brief account of this substance, that bears the same relationship to formic acid that acetanilide does to acetic acid. It is possessed of analgesic and antipyretic properties analogous to those of antipyrine and acetanilide. In doses of from ten to fifty centigrammes (a grain and a half to seven grains and a half) in twenty-four hours it reduces the temperature in pyrexia and relieves all pain of a neuralgic character; the antipyretic action is manifested at the end of five minutes, the maximum effect being produced in three or four hours. It may be attended by cyanosis, but never by any symptoms of collapse. It is a valuable local anæsthetic, the powdered substance, or a five-per-cent. solution, producing marked local anæmia followed by complete insensibility lasting from two to sixteen hours. A one per-cent. solution of formanilide, injected into the alimentary canal of a rabbit, suspends peristaltic action for a variable period of time, and, injected into the bladder, it causes cystic paresis. As an anæsthetic it is not so powerful or rapid in its action as cocaine, but the effect is more persistent. Formanilide, applied to a bleeding surface, arrests hæmorrhage more rapidly than antipyrine does.

THE CINCINNATI COLLEGE OF MEDICINE AND SURGERY.

THE chair of the principles and practice of medicine in this school has been tendered to Dr. J. C. Culbertson, the retiring editor of the *Journal of the American Medical Association*. Dr. Culbertson has returned to the editorial chair of the *Lancet and Clinic*, after an absence of two years at Chicago.

TROPACOCAINE IN OPHTHALMIC PRACTICE.

In the *British Medical Journal* for June 24th Dr. G. Ferdinands publishes the results of his clinical observations on tropacocaine in ophthalmic practice. He finds that it is more reliable in its action than cocaine, the anæsthesia it produces lasting a little longer and also being produced in inflamed tissue. There is a complete absence of that haze over the cornea that is so characteristic of cocaine anæsthesia. For general use a two-per-cent. or three-per-cent. solution is sufficient, and a five-per-

cent. solution may be used with safety when anesthesia of the deep-seated parts of the eye is required. The solutions made with distilled water keep well and retain their strength for months; and in only one case, in which a ten-per-cent. solution was used, did any disagreeable symptoms occur. It practically has no mydriatic action and it is not a hæmostatic.

THE FREAKS OF HEREDITY.

At a recent meeting of the Paris Hospital Medical Society, according to a report published in the *Union médicale* for June 13th, M. Marie showed the photograph of a woman with a supplementary mamma, and stated that nearly all the members of her family, for four generations back, had presented the same anomaly. Moreover, among her father's fifteen brothers and sisters there had been six twins, and among her own brothers and sisters, twelve in number, eight twins. All these fourteen twins were of the male sex, showing that the tendency to beget twins could be transmitted through the male line. Another example of this possibility was cited by M. Le Gendre—that of the Scotch poet, Burns, who was alleged to have become the father of twins four times, twice by his wife and twice by his mistress.

A MEDICAL BISHOP.

A DISTRICT of southeastern Africa, called Lebombo, has been apportioned to become a new diocese, and the Rev. William E. Smyth, M. D., has been appointed by the Anglican church authorities to the bishopric.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 11, 1893:

DISEASES.	Week ending July 4		Week ending July 11.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	0	1	7	1
Typhoid fever.....	17	5	16	5
Scarlet fever.....	74	9	75	9
Cerebro-spinal meningitis....	7	6	6	7
Measles	159	17	204	13
Diphtheria.....	125	45	130	43
Small-pox.....	6	1	3	0

The Legion of Honor.—The *Union médicale* announces that Dr. Kaposi, of Vienna, has been made an officer, and Dr. Riehl, of the same city, a chevalier.

Changes of Address.—Dr. James E. Newcomb, to No. 118 West Sixty-ninth Street; Dr. Frank Parsons Norbury, to the Hoffman Building, Jacksonville, Ill.; Dr. Alexander Rixa, to No. 337 East One Hundred and Sixteenth Street.

Naval Intelligence.—Official List of Changes in the Medical Corps of the United States Navy for the week ending July 8, 1893:

LEYS, JAMES S. Commissioned an Assistant Surgeon in the Navy.
 BEARDSLEY, G. S., Medical Director. Detached from the Navy Yard, Washington, D. C.
 WHITE, C. H., Medical Inspector. Detached from the Smithsonian Institution.
 WISE, JOHN C., Surgeon. Ordered to the Navy Yard, Washington, D. C.
 GRAYVATT, C. U., Surgeon. Ordered to the Smithsonian Institution.
 BROWNELL, C. De W., Assistant Surgeon. Detached from the U. S. Steamer Newark and granted one month's sick leave.

EVANS, S. G., Assistant Surgeon. Ordered to the U. S. Receiving-ship St. Louis.

RUSH, C. W., Passed Assistant Surgeon. Ordered before the Retiring Board.

Answers to Correspondents:

No. 409.—The Medical Society of the State of New York is the older body. Its annual meetings are held in Albany, in February. The New York State Medical Association meets in the autumn, usually in New York.

Book Notices.

The Mediterranean Shores of America. Southern California: its Climatic, Physical, and Meteorological Conditions. By P. O. REMONDINO, M. D., Member of the American Medical Association, etc. Fully illustrated. Philadelphia and London: The F. A. Davis Co., 1892. Pp. xiv to 160.

THE author maintains that various diseases, and pulmonary affections in particular, are the direct products of extreme variability of weather. He proves by statistical tables that pneumonia and pulmonary tuberculosis are almost unknown to the natives of Southern California, because of the various climatological, physical, and other conditions which determine an evenness of temperature and a hygroscopic state that are conducive to comfort and health. He criticises physicians for sending their consumptives to great altitudes, and cites numerous cases of cure of pulmonary tuberculosis by merely residing in southern California. The temperature rarely reaches there below 20° F. in the winter months, and is generally about 80° F. in the hottest summer months; if by exception it does reach 100° F. it is never as oppressive as this temperature is known to be in New York, and the inhabitants, the author says, would hardly feel uncomfortable if it were not for the mere knowledge of the height of the temperature. In the winter it is never necessary to heat apartments artificially. The author has lived there for twenty years, and never had artificial heat in his house. The book is handsomely got up and well illustrated, and it is not too much to say that it is fascinating reading.

Diseases of the Eye. A Practical Treatise for Students of Ophthalmology. By GEORGE A. BERRY, M. B., F. R. C. S. Edin., Ophthalmic Surgeon, Edinburgh Royal Infirmary, etc. Second Edition, revised and enlarged. With Colored Illustrations from Original Drawings. Philadelphia: Lea Brothers & Co., 1893. Pp. xxii-727.

EVERY one who has become accustomed to consult the first edition of this work will gladly seize the opportunity to discover what improvements the author has made in it. It has been largely rewritten, the arrangement of the chapters has been greatly changed, and many new drawings and diagrams have been introduced. Most, if not all, of these changes are improvements, though a change in arrangement may not appeal as such to the student or practitioner who has become used to opening the book at about a certain point in search of particular information, and now finds himself obliged to consult the index. But the very high standard of the work as a clinical text-book has been maintained, and the work is to be commended in the highest terms.

BOOKS, ETC., RECEIVED.

A Text-book of Medicine, for Students and Practitioners. By Dr. Adolph Strümpell, Professor and Director of the Medical Clinique at Erlangen. Second American Edition. Trans-

lated, by permission, from the Second and Third, and thoroughly revised from the Sixth German Edition. By Herman F. Vickery, A. B., M. D., Instructor in Clinical Medicine, Harvard University; Physician to Out-patients, Massachusetts General Hospital, etc.; and Philip Coombs Knapp, A. M., M. D., Clinical Instructor in Diseases of the Nervous System, Harvard University; Physician to Out-patients with Diseases of the Nervous System, Boston City Hospital, etc. With Editorial Notes by Frederick O. Shattuck, A. M., M. D., Jackson Professor of Clinical Medicine, Harvard University; Visiting Physician to the Massachusetts General Hospital, etc. With One Hundred and Nineteen Illustrations. New York: D. Appleton & Co., 1893. Pp. xxiii-1043.

Recent Developments in Massage, Historical, Physiological, Medical, and Surgical. By Douglas Graham, M. D., Boston, Mass. Second Edition. Illustrated. Detroit: George S. Davis. 1893. Pp. iv-128. [*The Physicians' Leisure Library.*]

Manuel du médecin praticien. La pratique dermatologique et syphiligraphique des hôpitaux de Paris. Aide-mémoire et formulaire. Par le Professeur Paul Lefert. Paris: J. B. Baillière et fils. 1893. Pp. vi-7 to 288.

On Snake Poison. Its Action and its Antidote. By A. Mueller, M. D. Sydney: L. Bruck. 1893. Pp. vi-85.

Eighteenth Annual Report of the Secretary of the State Board of Health of the State of Michigan, for the Year ending June 30, 1890.

Hæmatomyelia and Acute Myelitis. By Joseph Collins, M. D., New York. [Reprinted from the *Medical Record.*]

The Treatment of Hernia. By Alexander Dallas, M. D., New York. Read before the Medical Society of the State of New York, February 7, 1893.

Reminiscences of the Founders of the Woman's Hospital Association. By Thomas Addis Emmet, M. D. [Reprinted from the *New York Journal of Gynecology and Obstetrics.*]

Cholecystotomy. By Edwin Ricketts, M. D., Cincinnati, Ohio. [Reprinted from the *Transactions of the Southern Surgical and Gynecological Association.*]

Laparotomy and Removal of Cystic Tumor (Cysto adenoma) of Peritonæum; Formation of Artificial Anus; Subsequent Laparotomy and Resection of Colon; Closure of Artificial Anus; Recovery. By W. Page McIntosh, M. D., P. A. Surgeon Marine-Hospital Service. [Reprinted from the *American Journal of the Medical Sciences.*]

Acromegaly, with the Clinical Report of a Case. By Archibald Church, M. D., and William Hessert, M. D., Chicago, Ill. [Reprinted from the *Medical Record.*]

Typhus Fever as met with in Mexico, with Special Reference to its Treatment. By David Cerna, M. D. [Reprinted from the *St. Louis Medical Review.*]

The Clinical Value of Repeated Careful Correction of Manifest Refractive Error in Plastic Iritis. By Charles A. Oliver, M. D., Philadelphia. [Reprinted from the *American Ophthalmological Society Transactions.*]

Homœopathy and its Congeners. A Lecture delivered at the Chicago College of Physicians and Surgeons. By G. Frank Lydston, M. D.

Neuritis and Myelitis and the Forms of Paralysis and Pseudo-paralysis following Labor. By Charles K. Mills, M. D., Philadelphia. [Reprinted from the *University Medical Magazine.*]

Report of a Case of Ophthalmia Albuminurica. By S. Pollak, M. D., St. Louis, Mo. [Reprinted from the *American Journal of Ophthalmology.*]

A History of Surgery in South Carolina. By Edward Frost Parker, M. D., Charleston, S. C. [Reprinted from the *North Carolina Medical Journal.*]

Deformities of the Nasal Septum and their Influence in Diseases of the Ear and Throat. By W. Scheppergrell, M. D., New Orleans, La. [Reprinted from the *New Orleans Medical and Surgical Journal.*]

A Case of Malignant Syphilis, resulting in Death. By A. E. Roussel, M. D., Philadelphia. [Reprinted from the *Medical News.*]

The Pathology of Carcinoma. By Henry C. Coe, M. D., New York. [Reprinted from the *Transactions of the Medical Society of the State of New York.*]

Cancer of the Cervix Uteri complicating Pregnancy. By Henry C. Coe, M. D., New York. [Reprinted from the *American Journal of Obstetrics.*]

Colotomy. By Charles B. Kelsey, M. D., New York. [Reprinted from the *Therapeutic Gazette.*]

A Unique Case of Traumatic Neurosis. By R. Harvey Reed, M. D., Mansfield, Ohio. [Reprinted from the *International Medical Magazine.*]

A Treatise on Ruptures. By Jonathan F. O. H. Macready, F. R. C. S., Surgeon to the Great Northern Central Hospital, to the City of London Hospital for Diseases of the Chest, Victoria Park, etc. With Twenty-four Lithographed Plates and Illustrations in the Text. Philadelphia: P. Blakiston, Son, & Company, 1893. Pp. xviii-442. [Price, \$6.]

An Introduction to Practical Bacteriology for Physicians, Chemists, and Students. By Dr. W. Migula, Lecturer on Botany in the Grand-ducal Technical High School of Karlsruhe. Translated by M. Campbell, and edited by H. J. Campbell, M. D., M. R. C. P., etc. With Nine Illustrations in the Text and Two Plates. London: Swan, Sonnenschein, & Co.; New York: Macmillan & Co., 1893. Pp. vii-247. [Price, \$1.60.]

Stricture of the Urethra. By G. Frank Lydston, M. D., Professor of the Surgical Diseases of the Genito-urinary Organs in the Chicago College of Physicians and Surgeons, etc. With Seven Full-page Plates and Eighty-five Woodcuts. Chicago: The W. T. Keener Company, 1893. Pp. viii-2 to 334. [Price, \$3.00.]

Electricity in Diseases of Women and Obstetrics. By Franklin H. Martin, M. D., Professor of Gynecology, Post-graduate Medical School of Chicago, etc. With Illustrations. Chicago: The W. T. Keener Company, 1893. Pp. xiv-278. [Price, \$2.]

Cholera: its Causes, Symptoms, Pathology, and Treatment. By Roberts Bartholow, M. D., LL. D., Emeritus Professor of Materia Medica, General Therapeutics, and Hygiene in the Jefferson Medical College of Philadelphia, etc. Philadelphia: Lea Brothers & Co., 1893. Pp. vii-13 to 132.

Die Zarnath (Lepra) der hebräischen Bibel. Einleitung in die Geschichte des Aussatzes. Von G. N. Munch, Ord. O. Professor der Universität zu Kiew. Mit 2 Lichtdrucktafeln. Hamburg and Leipsic: Leopold Voss, 1893. Pp. 167. [Preis, 6 M.] [Dermatologische Studien. Herausgegeben von Dr. P. G. Unna.]

The Meaning and the Method of Life. By George M. Gould, A. M., M. D. Reviewed by Josiah Royce, Harvard University. [Reprinted from the *International Journal of Ethics.*]

Lymphoid Growths in the Vault of the Pharynx. By Thomas R. French, M. D., Brooklyn. [Reprinted from the *Brooklyn Medical Journal.*]

Resterilized Sponges, with Bacteriological Investigation. By D. Braden Kyle, M. D. [Reprinted from the *Therapeutic Gazette.*]

Points of Similarity between us and Homœopathic Physicians. The Annual Address of the President of the Philadelphia County Medical Society for 1892. By John B. Roberts, A. M., M. D. [Reprinted from the *Transactions of the Philadelphia County Medical Society.*]

Trephining for Basal Hæmorrhage in a Woman at the Point of Death (Recovery). By Andrew Smart, M. D. [Reprinted from the *Edinburgh Hospital Reports*.]

The Operative Treatment for Myofibroma of the Uterus. By H. J. Boldt, M. D. [Reprinted from the *American Journal of Obstetrics*.]

Ueber Gelenkgicht. Vorschlag einer neuen medicamentösen Behandlung der Arthritis urica und ein Versuch der Begründung derselben. Von Dr. F. Grimm, in Berlin. [Sonderabdruck aus der *Deutschen medicinischen Wochenschrift*.]

Degenerazione, pazzia e delitto a proposito d'un fatto delittuoso. Una la lettura fatta nella sede dell' Associazione Universitaria di Napoli sera del 26 Marzo, 1892. Dottor A. Zuccarelli.

Transactions of the American Dermatological Association at its Sixteenth Annual Meeting, held at the Pequot House, New London, Conn., on the 13th, 14th, and 15th of September, 1892. Official Report of the Proceedings by George Thomas Jackson, M. D., Secretary.

Catalogue of the Exhibits in the Museum of Hygiene, Medical Department of the United States Navy. Compiled by Philip S. Wales, Medical Director, U. S. N.

Miscellany.

The New Medical Law of Pennsylvania.—The Medical Society of the State of Pennsylvania's committee on legislation, consisting of Dr. H. G. McCormick (chairman), Dr. W. Murray Weidman, Dr. J. W. Moore, Dr. I. C. Gable, Dr. C. L. Stevens, Dr. W. S. Foster, and Dr. John B. Roberts (secretary), is to be congratulated on having secured the passage of a satisfactory medical law for the State. The following is the text of the law:

An Act to establish a Medical Council and three State Boards of Medical Examiners, to define the powers and duties of said Medical Council and said State Boards of Medical Examiners, to provide for the examination and licensing of practitioners of medicine and surgery, to further regulate the practice of medicine and surgery, and to make an appropriation for the Medical Council.

Whereas, The safety of the public is endangered by incompetent physicians and surgeons, and due regard for public health and the preservation of human life demands that none but competent and properly qualified physicians and surgeons shall be allowed to practice their profession,

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, That there shall be established a Medical Council of Pennsylvania, consisting of the Lieutenant Governor, the Attorney General, the Secretary of Internal Affairs, the Superintendent of Public Instruction, and the President of the State Board of Health and Vital Statistics, and the presidents of the three State Boards of Medical Examiners provided for in this act.

SEC. 2. The said council shall be known by the name and style of the Medical Council of Pennsylvania, and may make and adopt all necessary rules and regulations and by-laws not inconsistent with the constitution and laws of this Commonwealth or of the United States, and shall have power to locate and maintain an office within this State for the transaction of business. Five members of the said council shall constitute a quorum for the transaction of business.

SEC. 3. The said council shall organize at Harrisburg within ten days from the date of the organization of three boards of medical examiners, and shall elect from its own number a president and a secretary, who shall also act as treasurer, both of whom shall hold their offices for one year or until their successors are chosen.

SEC. 4. The members of the said council shall receive no salary, except the secretary and treasurer, who shall receive a salary of not over five hundred dollars, and who shall file with the president of the council a bond in the sum of one thousand dollars, conditioned for the faithful performance of his duties. The necessary expenses of the said council shall be paid out of the appropriation made in section sixteen of this act, and any balance remaining from the appropriation after the disbursements herein specified shall be paid into the treasury of the Commonwealth.

SEC. 5. The said medical council shall hold two stated meetings in each year at Harrisburg, and may hold special meetings at such times and places as it may deem proper. It shall supervise the examinations conducted by the three State Boards of Medical Examiners of all applicants for license to practice medicine and surgery in this Commonwealth, and shall issue licenses to practice medicine and surgery to such applicants as have presented satisfactory and properly certified copies of licenses from State Board of Medical Examiners or State Boards of Health of other States, as provided for in section thirteen of this act, or as have successfully passed the examination of one of the three State Boards of Medical Examiners, but all such examinations shall be made by the State Boards of Medical Examiners established in section six of this act. And the said Medical Council shall have no power, duty, or function except such powers, duties, and functions as pertain to the supervision of the examinations of applicants for licenses to practice medicine and surgery and to the issuing of licenses to such applicants as have successfully passed the examination of one of the State Boards of Medical Examiners or have presented satisfactory and properly certified copies of licenses from State Boards of Medical Examiners or State Boards of Health of other States, as provided for in section thirteen of this act.

SEC. 6. It is further enacted that from and after the first day of March, anno Domini one thousand eight hundred and ninety-four, there shall be and continue to be three separate boards of Medical Examiners for the State of Pennsylvania, one representing the Medical Society of the State of Pennsylvania, one representing the Homœopathic Medical Society of the State of Pennsylvania, one representing the Eclectic Society of the State of Pennsylvania.

Each board shall consist of seven members, and each of said members shall serve for a term of three years from the first day of March next after his appointment, with the exception of those first appointed, who shall serve as follows: Two of each board for one year, two of each board for two years, and three of each board for three years from the first day of March, anno Domini one thousand eight hundred and ninety-four.

The Governor shall appoint the members of said boards of examiners respectively from the full lists of the members of the said medical societies, which lists shall on or before the first day of January, one thousand eight hundred and ninety-four, and annually thereafter, be transmitted to the Governor under the seal and signed by the secretary of the society so nominating. From these lists of nominees respectively the Governor shall during the month of January, anno Domini one thousand eight hundred and ninety-four, appoint three separate boards of medical examiners, each board to be composed exclusively of members of the same medical society. In case of failure of any or all of said medical societies to submit lists as aforesaid, the Governor shall appoint members in good standing of the corresponding society or societies entitled to nominate without other restriction. Each one of the said appointees must be a registered physician in good standing and shall have practiced medicine or surgery under the laws of this State for a period of not less than ten years prior to such appointment.

The Governor shall fill vacancies, by death or otherwise, for unexpired terms of said examiners from the respective lists submitted by the said medical societies, and may remove any member of any said boards for continued neglect of the duties required by this act or on recommendation of the medical society of which said members may be in affiliation, for unprofessional or dishonorable conduct.

The Governor shall in his first appointments designate the number of years for which each appointee shall serve. The appointments of successors to those members whose term of office will expire on the first day of March of each year shall be made by the Governor during

the month of January of each year upon the same conditions and requirements as hereinbefore specified with reference to the appointment of three separate examining boards, each to be composed exclusively of members of the same medical school and society as hereinbefore provided.

SEC. 7. Said boards shall be known by the name and style of Boards of Medical Examiners of the State of Pennsylvania. Every person who shall be appointed to serve on either of said boards shall receive a certificate of appointment from the Secretary of the Commonwealth.

Each of said boards shall be authorized to take testimony concerning all matters within its jurisdiction, and the presiding officer for the time being of either of said boards or of any of the committees thereof may issue subpoenas and administer oaths to witnesses. Each of said boards of examiners shall make and adopt all necessary rules, regulations, and by-laws, not inconsistent with the constitution and laws of this State or of the United States, whereby to perform the duties and transact the business required under the provisions of this act, said rules, regulations, and by-laws to be subject to the approval of the Medical Council of Pennsylvania established by this act.

SEC. 8. From the fees provided by this act the respective boards may pay, not to exceed said income, all proper expenses incurred by its provisions, and if any surplus above said expenses shall remain at the end of any year it shall be apportioned among said examiners pro rata according to the number of candidates examined by each; provided that the Medical Council shall keep separate accounts of all fees received from physicians applying for licenses to practice medicine and surgery, and shall not devote any such fees to the uses of the council or to the uses or remuneration of any other examining board than that of the society with which the physician who pays the fee wishes to be affiliated.

SEC. 9. The first meeting of each of the examining boards respectively shall be held on the first Tuesday of April, one thousand eight hundred and ninety-four, suitable notice in the usual form being given with the notice of their appointment by the Secretary of Commonwealth to each of the members thereof, specifying the time and place of meeting.

At the first meeting of each of the boards respectively an organization shall be effected by the election from their own membership of a president and secretary. For the purpose of examining applicants for license, each of said boards of medical examiners shall hold two or more stated or special meetings in each year, due notice of which shall be made public at such times and places as they may determine. At said stated or special meetings a majority of the members of the board shall constitute a quorum thereof, but the examination may be conducted by a committee of one or more members of the board of examiners duly authorized by said boards.

SEC. 10. The several boards of medical examiners shall, not less than one week prior to each examination, submit to the Medical Council of Pennsylvania questions for thorough examinations in anatomy, physiology, hygiene, chemistry, surgery, obstetrics, pathology, diagnosis, therapeutics, practice of medicine, and materia medica. From the lists of questions so submitted the council shall select the questions for each examination, and such questions for each examination shall be the same for all candidates, except in the departments of therapeutics, practice of medicine, and materia medica the questions shall be in harmony with the teachings of the school selected by the candidate.

SEC. 11. Said examinations shall be conducted in writing in accordance with the rules and regulations prescribed by the Medical Council of Pennsylvania, and shall embrace the subjects named in section ten of this act. After each such examination the board having charge thereof shall without unnecessary delay act upon the same. An official report of such action, signed by the president, secretary, and each acting member of said board of medical examiners, stating the examination average of each candidate in each branch, the general average, and the result of the examination, whether successful or unsuccessful, shall be transmitted to the Medical Council. Said report shall embrace all the examination papers, questions, and answers thereto. All such examination papers shall be kept for reference and inspection for a period of not less than five years,

SEC. 12. On receiving from any of said boards of medical examiners such official report of the examination of any applicant for license the Medical Council shall issue forthwith to each applicant who shall have been returned as having successfully passed said examination, and who shall have been adjudged by the Medical Council to be duly qualified for the practice of medicine, a license to practice medicine and surgery in the State of Pennsylvania. The Medical Council shall require the same standard of qualifications from all candidates except in the departments of therapeutics, practice of medicine, and materia medica, in which the standard shall be determined by each of the boards respectively. Every license to practice medicine and surgery issued pursuant to this act shall be subscribed by the officers of the Medical Council and by each medical examiner who reported the licensee as having successfully passed said examinations. It shall also have affixed to it by the person authorized to affix the same the seal of the Commonwealth.

Before said license shall be issued it shall be recorded in a book to be kept in the office of the Medical Council, and the number of the book and page therein containing said recorded copy shall be noted upon the face of said license. Said records shall be open to public inspection under proper restrictions as to their safe keeping, and in all legal proceedings shall have the same weight as evidence that is given to the conveyance of land.

SEC. 13. From and after the first day of July, anno Domini one thousand eight hundred and ninety-four, any person not theretofore authorized to practice medicine and surgery in this State and desiring to enter upon such practice may deliver to the Secretary of the Medical Council, upon the payment of a fee of twenty-five dollars, a written application for license, together with satisfactory proof that the applicant is more than twenty-one years of age, is of good moral character, has obtained a competent common-school education, and has received a diploma conferring the degree of medicine from some legally incorporated medical college of the United States or a diploma or license conferring the full right to practice all the branches of medicine and surgery in some foreign country. Applicants who shall have received their degree in medicine after the first day of July, one thousand eight hundred and ninety-four, must have pursued the study of medicine for at least three years, including three regular courses of lectures in different years in some legally incorporated medical college or colleges prior to the granting of said diploma or foreign license; and after the first day of July, eighteen hundred and ninety-five, such applicants must have pursued the study of medicine for at least four years, including three regular courses of lectures in different years in some legally incorporated medical college or colleges prior to the granting of said diploma or foreign license. Such proof shall be made, if required, upon affidavit. Upon the making of said payment and proof the Medical Council, if satisfied with the same, shall issue to said applicant an order for examination before such one of the State Boards of Medical Examiners as the applicant for license may select. In case of failure at any such examination the candidate, after the expiration of six months and within two years, shall have the privilege of a second examination by the same board to which application was first made without the payment of an additional fee. And it is further provided that applicants examined and licensed by State Boards of Medical Examiners or State Boards of Health of other States, on payment of a fee of fifteen dollars to the Medical Council and on filing in the office of the Medical Council a copy of said license certified by the affidavit of the president or secretary of such board, showing also that the standard of acquisitions adopted by said State Board of Medical Examiners or State Board of Health is substantially the same as is provided by sections eleven, twelve, and thirteen of this act, shall without further examination receive a license conferring on the holder thereof all rights and privileges provided by sections fourteen and fifteen of this act.

SEC. 14. From and after the first day of March, anno Domini one thousand eight hundred and ninety-four, no person shall enter upon the practice of medicine or surgery in the State of Pennsylvania unless he or she has complied with the provisions of this act and shall have exhibited to the prothonotary of the court of common pleas of the county in which he or she desires to practice medicine or surgery a license duly granted to him or her as hereinbefore provided, whereupon he or she

shall be entitled, upon the payment of one dollar, to be duly registered in the office of the prothonotary of the court of common pleas in the said county, and any person violating any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof in the court of quarter sessions of the county wherein the offense shall have been committed shall pay a fine of not more than five hundred dollars for each offense.

Sec. 15. Nothing in this act shall be construed to interfere with or punish commissioned medical officers serving in the army or navy of the United States or in the United States Marine-Hospital Service while so commissioned, or medical examiners of relief departments of railroad companies while so employed, or any one while actually serving as a member of the resident medical staff of any legally incorporated hospital, or any legally qualified and registered dentist exclusively engaged in the practice of dentistry, nor shall it interfere with or prevent the dispensing and sale of medicines or medical appliances by apothecaries or pharmacists, or interfere with the manufacturers of artificial eyes, limbs, or orthopedic instruments of any kind from fitting such instruments on persons in need thereof, or any lawfully qualified physicians and surgeons residing in other States or countries meeting registered physicians of this State in consultation, or any physician or surgeon residing on the border of a neighboring State and duly authorized under the laws thereof to practice medicine and surgery therein whose practice extends into the limits of this State, provided that such practitioner shall not open an office or appoint a place to meet patients or receive calls within the limits of Pennsylvania, or physicians duly registered in one county of this State called to attend cases in another county but not residing or opening an office therein. And nothing in this act shall be construed to prohibit the practice of medicine and surgery within this Commonwealth by any practitioner who shall have been duly registered before the first day of March, anno Domini one thousand eight hundred and ninety-four, according to the terms of the act entitled "An act to provide for the registration of all practitioners of medicine and surgery," approved the eighth day of June, anno Domini one thousand eight hundred and eighty-one, and one such registry shall be sufficient warrant to practice medicine and surgery in any county in this Commonwealth.

Sec. 16. The sum of two thousand dollars is hereby appropriated out of any moneys in the State treasury not otherwise appropriated for the salary of the secretary and treasurer of said medical council and the necessary expenses of said council, one thousand dollars thereof for the year beginning January first, one thousand eight hundred and ninety-four, and one thousand dollars thereof for the year beginning January first, one thousand eight hundred and ninety-five.

Sec. 17. All acts or parts of acts of Assembly inconsistent herewith shall be and are hereby repealed.

Suprapubic Cystotomy in Two Stages.—In an article published in the *Philadelphia Medical News* for July 1st, Professor Nicholas Senn, of Chicago, remarks that suprapubic cystotomy for the removal of stone in the bladder, the operative treatment of intravesical tumors, or the formation of a temporary or permanent fistula in obstructive diseases due to enlarged prostate, has become a legitimate and permanent procedure in surgery. The technique of the operation is destined to undergo improvement. Distention of the bladder and rectum renders the prevesical space more accessible, and Trendelenburg's posture is of great value in all suprapubic intravesical operations. If the bladder itself is healthy, the high entrance into the organ for therapeutic purposes can be effected with little or no immediate or remote risk to life. In such cases the ideal after-treatment would be suturing of the vesical and external wounds, thus placing the parts in a condition for healing of the visceral wound by primary intention. Such a result has been obtained only in exceptional cases, even by surgeons of large experience and specially skilled in the performance of the operation.

Attempts have been made to prevent contact of septic urine with the recent wound by resorting to drainage of the ureters after suprapubic cystotomy. C. Willems advocates this practice, which, he states, is a delicate yet perfectly practicable procedure. In hypogastric lithotomy it is advisable whenever union of the wound in the bladder is important and subject to prejudicial influences—in fact, whenever the

urine is unhealthy and septic. The ureters should also be drained after the removal of the vesical tumor, whether by hypogastric or perineal incision. The wound is thus protected from contact with morbid urine, and antiseptic plugging of the vesical cavity is permitted.

The patient is placed in the Trendelenburg posture, the pelvis being raised about fifteen inches from the table. The abdominal viscera no longer press the walls of the bladder in contact, and the trigone can readily be seen through the hypogastric incision. A catheter with a Y-shaped extremity is then passed backward through the urethra. The two branches are next introduced into the ureters. The procedure is a delicate one; the upper part of the mucous fold over the orifice of the ureter must be seized with forceps of the kind used for fixing the conjunctiva oculi. Otherwise the very movable vesical mucous membrane may be pushed forward. As the vesical part of the ureter is a narrow funnel, the passage of the catheter needs skillful manipulation. The ureter tolerates the catheter very fairly. In a case of Pawlik's the woman tolerated its presence for forty-eight hours; in Schede's (operation for utero-vaginal fistula), for seven days; and in Albarra's (also in a woman), for ten days. The catheter thus allows full time for perfect union of the vesical wound.

This after-treatment is too complicated and difficult for the average surgeon, and in many cases of septic cystitis it is not applicable. Most surgeons have therefore discarded primary suturing of the visceral wound and rely on drainage and healing by secondary intention. Healing of the wound usually takes place in from four to eight weeks. Future research and experience will undoubtedly enable us to devise some means by which primary healing of the wound will be the rule and not the exception in such cases, and thus shorten the period of recovery to a minimum. The matter is, however, entirely different when suprapubic cystotomy is performed in a case in which the bladder is the seat of a septic cystitis, and such cases most frequently require the services of the surgeon. The adipose and loose connective tissue in the prevesical space, which constitutes a considerable part of the suprapubic route into the bladder, is exceedingly susceptible to infection with pathogenic microbes. The urine in such cases is ammoniacal, toxic, and irritating, and, when brought in contact with the prevesical tissues, exceedingly prone to cause necrosis. The pus microbes contained in decomposed, putrid urine find in the prevesical space the most favorable conditions for the exercise of their specific pathogenic properties. Under such circumstances the wound frequently becomes the seat of sloughing and phlegmonous inflammation, in spite of the most rigid precautions. Suturing of the margins of the vesical wound to the abdominal incision furnishes no protection against this complication. The same can be said of drainage of the bladder and packing of the wound with iodoform gauze. The author has lost two patients from extensive sloughing of the prevesical and paravesical connective tissue. In one case the post-mortem showed that the base of the bladder was nearly separated from the surrounding tissues by extensive necrosis of the adipose and connective tissue interposed between them. It has occurred to him that this source of danger might be successfully avoided by performing the operation in two stages, and he has resorted to this modification in a number of instances, with most gratifying results.

The modification of the operation that he proposes is based on the familiar surgical fact that granulating surfaces furnish an almost absolute protection against infection. The first operation is performed under the influence of an anesthetic. The rectum and bladder are distended in the usual manner. The field of operation is rendered aseptic, and the bladder is exposed freely by dissecting away the prevesical fat over an oval surface about two inches in length and half as wide. After the hemorrhage is arrested the wound is firmly packed with iodoform gauze. The external dressing should be securely fastened by strips of adhesive plaster, which are made to encircle the pelvis and which prevent the dressing from becoming displaced. At the end of five days the dressing and iodoform gauze are removed and the bladder is distended and incised without the use of an anesthetic, if it is intended to simply establish a suprapubic fistula, or if a small stone is to be removed. More serious intravesical operations would require the use of an anesthetic. If the wound has remained aseptic it will now be found covered throughout by a layer of active granulations. These granulations have closed the connective-tissue channels, and have shut

out from the wound the balance of the prevesical space. If no anæsthetic is used, the surface of the wound is brushed over with a five-per-cent. solution of cocaine five minutes before the operation. The bladder and rectum are distended in order to render the anterior wall of the bladder more accessible. The bladder is incised and drained in the usual manner. The septic urine is harmless to the granulations, and thus the dangers of the operation are minimized.

It must be admitted that in patients greatly debilitated by the disease that rendered the operation necessary, the immediate risk of the operation is greatly diminished by performing it in two stages. Another great advantage accruing from this modification of the operation is that at the time the second step is carried out the wound is already in a favorable condition for definite healing. For the purpose of illustrating the value of this modification of performing suprapubic cystotomy in affections of the bladder complicated by septic cystitis, Dr. Senn briefly reports two cases that have recently come under his observation.

He formulates the following conclusions for further deliberation :

1. Necrosis and phlegmonous inflammation of the margins of the wound and the tissues in the prevesical space (cavum Retzii) not infrequently occur as complications of suprapubic cystotomy, if the operation is performed for affections complicated by septic cystitis.
2. Suprapubic cystotomy in two stages greatly diminishes, if it does not entirely overcome, this source of danger.
3. In the first operation the bladder is freely exposed in the usual manner, when the prevesical fat is dissected away over a vertical oval space at a point corresponding to the location of the proposed visceral incision, after which the wound is packed with iodoform gauze, and the external dressing is applied in such a manner that it can not become displaced.
4. The incision in the bladder and the intravesical operation are postponed until the external wound has become covered with a layer of active granulations, which usually requires from four to six days.
5. The second operation can be performed with the aid of cocaine, without general anæsthesia.
6. This modification of suprapubic cystotomy diminishes the immediate risks of the operation, and affords protection against a number of serious *post-operationem* complications.

Chronic Tropical Diarrhœa as it Occurs among the Natives of India is the subject of an article by Mr. A. P. Das, L. M. S., published in the *Calcutta Medical Reporter* for June 1st.

This disease, he says, is called diarrhœa alba from the white nature of the stools, and it is also called morning diarrhœa from the purging which occurs frequently in the early morning. By the *Kabiraj* it is called *grihiyeng* ; by the Chinese, *spane* ; and by the Himalayan tribes, *hill diarrhœa*.

Malaria is often a predisposing as well as an exciting cause of this disease, as we often find chronic diarrhœa coming on after an attack of remittent or intermittent fever, when the health is broken down. In some constitutions slow malaria working latently in the system causes congestion of the abdominal viscera, especially of the liver, and disorders of the chylipoietic system. When the system has thus been predisposed, alternations of temperature, exposure to damp, cold, irregularities of diet, drink, excessive exercise, bad water, or emanations from decomposing animal or vegetable matter which would have been innocuous under other circumstances, often produce that amount of unbalanced exosmosis called *flux*. In females, after childbirth or during lactation, when the system is debilitated, this disease slowly takes its root ; beginning with indigestion and acidity, but terminating in chronic tropical diarrhœa. Sometimes when simple diarrhœa has been neglected it takes on a chronic form, or when a patient has had several attacks of dysentery his system becomes susceptible to chronic diarrhœa. Slight irregularities of diet or exposure to cold or chill predispose to chronic diarrhœa and dysentery.

The gastric and pancreatic secretions, the bile, and the secretions from the intestinal follicles and glands become deteriorated. Gastric and intestinal digestion is imperfectly performed, while the power of absorption by the villi and veins of the intestines is diminished, especially when the disease becomes chronic. There is always conges-

tion of the intestinal vessels owing to the sluggish condition of the portal circulation. Atrophy of the secreting structure of the stomach, pancreas, and liver, also the villi, the follicles of Lieberkühn's solitary and agminate glands of the intestines, and the shedding of the epithelium of the villi are remarkable, but the reproduction is slow. Here and there we find the epithelium of the intestine is denuded, and small ulcers throughout the small and large intestines are observed. At last the secreting cells of the liver, stomach, pancreas, follicular and lenticular glands of the intestines and the absorbent structures of the villi undergo fatty and granular degeneration, or, as sometimes happens, the minute vessels of the villi become infiltrated with amyloid material, when the pathological condition becomes grave.

Sometimes chronic diarrhœa is complicated with organic disease of the liver and kidney, or both, when the prognosis is unfavorable. Similarly this disease is complicated with tuberculosis and pernicious anæmia. Cancrum oris is one of the rare complications.

At the early stage of the disease there are malaise and uneasiness, loss of or impaired appetite, a sense of fullness or distention after meals relieved by eructation, irregular action of the bowels ; sometimes the first motion is semi-liquid and the successive motions are loose. At first the motions are four or five in twenty-four hours ; afterward they range to ten or twelve in a day.

The motions are clay-colored, white, offensive, liquid, and passed generally in the early morning with a copious escape of flatus. They are copious, white, liquid evacuations when only liquid food is allowed, or henteric in proportion to the amount of solid material taken. There is portal plethora with or without hemorrhoidal tendency. The tongue is coated white and the taste is depraved. Sometimes the tongue is red and sore, indicating the denuded condition of the intestines. Uneasiness and griping in the abdomen are sometimes complained of, and sickness, horborygni, and thirst are prominent symptoms at all stages. In this state the patient may go on for weeks and months until his health is shattered and he becomes incapable of work, when anæmia, as indicated by pallor of the face, lips, and conjunctiva, shows itself.

In the advanced stage the motions are painless, more frequent, watery, copious, white, and of offensive smell. Sometimes the motions contain blood, mucus, or gelatinoid exudations. If there is dysenteric complications the patient will complain of pain and gripes during evacuations. Extreme anæmia and debility set in, the red blood-corpuscles become deficient in number and color, and there is attenuation of the albumin of the blood. Sometimes the conjunctiva is tinged yellow, tongue red, smooth and shining, and destitute in great part of epithelium. Thirst and sickness are excessive, pulse weak, feeble, and compressible, palpitation, giddiness on slight exertion ; urine scanty, high-colored, and sometimes with deposit of urates and lithates ; hollow cheeks, sunken eyes, and pinched face are always remarkable ; skin is dry and parched, perspiration checked. Temperature normal or subnormal, or slight rise during the night. There is tenderness over the cæcum, colon, or ileum. In some cases the liver and spleen are enlarged, but in the majority of cases the liver is tender and painful on pressure. Emaciation and wasting are extreme. There is a tendency to swelling of the feet, and local anasarca may run up to the knee ; but rarely is there any effusion into the serous cavities, unless the case is complicated with cirrhosis of liver or Bright's disease. At this advanced stage food when taken is not assimilated, on account of the atrophic condition of the glands of the stomach and intestines.

Sir Joseph Fayrer and Dr. Joseph Ewart, in their elaborate papers on chronic tropical diarrhœa as it occurs among the Europeans in India, read before the Medical Congress at Copenhagen in 1884, alluded to the pigmentation of the skin and purpuric or scorbutic effusion of blood under the skin, but these symptoms are rarely to be found among the natives of India, on account of the peculiar nature and tint of their skin.

By the history of the case, by the nature and frequency of the stools, we can arrive at an early and easy diagnosis.

The prognosis depends upon the complications. If chronic diarrhœa is attended with amyloid degeneration, the prognosis is grave ; also if there is any cirrhosis of the liver, chronic or acute Bright's disease, or tuberculosis of the lung or pernicious anæmia. In the aged the prognosis is unfavorable.

Our old plan of treatment with opiates and astringents with a mixed dietary is not efficacious for these cases, but our new plan is only an imitation of what *Kabirajs* have practiced from bygone times, though the profession is indebted to Sir Joseph Fayrer and Dr. Joseph Ewart for the new mode of treatment with milk and milk only.

In mild cases, *bael* in some shape, combined with milk diet, will have a good effect. Of *bael* he prefers an ounce of the pulp of the ripe fruit, in the shape of sherbet, morning and evening. If the ripe fruit is not procurable, the liquid extract of *bael*, a drachm dose, or *bael* powder a teaspoonful twice daily can replace it. Milk, fresh and boiled, is preferable. About three fourths or one seer in twenty-four hours, in divided doses at the commencement, to be increased gradually as the digestive power will increase. If there is any exacerbation in the evening, a two-grain quinine pill once in the morning, for about a week or two, will check it.

From the day milk diet is given, distinct effects will be noticed in the patient, who will sleep well, and will obtain rest from his abdominal troubles, the motions will decrease in number, and will be consistent. These effects will be noticeable a week after the commencement of the milk treatment, sometimes earlier or later. Sometimes on the continuation of milk diet the bowels get constipated; then a dose of castor oil—say four drachms—in the early morning is advisable. In these cases milk is preferable for the reason that the stomach is weak like a child's stomach, and as milk is our rudimentary food which Nature has put before us for its easy digestibility, it agrees very well. Sage, arrowroot, or other starchy diet will do mischief at the first stage of treatment.

In severe cases, when there is any congestion or enlargement of the liver, a minute dose of calomel, an eighth to a sixth of a grain, or liq. hydrarg. perchloridi, five to eight minims, twice daily, acts like a charm. Mercury acts as an alternative, also as an intestinal antiseptic, and it has a specific action over the liver.

In some cases the irritability and the peristaltic action of the intestines is so aggravated that milk when taken is hurried down for evacuation, when a five-drop dose of liq. opii or tinct. opii (B. P.), twice daily, will prove beneficial, increasing absorption by lessening the peristaltic action of the intestines.

In all cases, and at all stages, a strict milk diet should be continued till the health improves, or till the sores in the mouth are better, and are replaced by natural epithelium. Keep the patient on milk diet for thirty to forty days.

Rest is very necessary. Exposure to cold draughts or chill is injurious. Keep the body well covered and put the patient in a well-ventilated room. Drinking much cold water, soda water, or strong tea is objectionable. Sponging the body with tepid water is an auxiliary step toward cure.

During the convalescent stage, gentle exercise, change of air, regulated diet, and some ferruginous tonics, such as dialyzed iron, ferri et pot. tart., five grains, with an ounce of infusion of *calumba*, twice daily, will hasten the cure.

"Red Chromidrosis."—This is the title of an article contributed by Dr. M. B. Hartzell to the July number of the *University Medical Magazine*. It is much to the author's credit that he puts a question-mark after the title, although only on pathological grounds—namely, that the disease, of which he gives notes of three cases, is not a true chromidrosis, for the sudoriparous glands are not affected, or, at most, play only a secondary part in the production of its phenomena.

"In none of these cases," he continues, "was the sweat colored at the time of its excretion, but it seemed to act as a solvent for the coloring matter present in the small excrecences upon the axillary and perineal hairs.

"A microscopical examination of the nodules with a magnification of two hundred diameters shows that the fungus began to grow upon the surface of the hair, but with the growth of the parasite the hair itself was penetrated, being split up into numerous small fibers, and, in the case of the perineal hairs, fracture of the hair shaft occurred with the production of brush-like ends in which the small brown mass was lodged. In the larger nodules a magnification of some eight hundred diameters showed numerous parallel striae running at right angles

to the shaft of the hair, while in the fine colorless hairs upon which the fungus was just beginning to grow a fine dotted appearance was seen.

"Upon subjecting the hair to the action of liquor potasse and afterward crushing the nodules thoroughly upon a slide, staining with safranin and mounting in glycerin, a high power showed that the mass was composed of numerous micrococci which grew between the fibers of the hair and around the shaft, and were held together by a yellowish or orange-colored amorphous substance. A few attempts at culture upon sterilized potato at the ordinary house temperature were made, but without success.

"Dr. Kneass, who kindly undertook to make some culture experiments for me in the pathological laboratory of the University of Pennsylvania, succeeded in cultivating the fungus upon sugar at a temperature of 37° C. The fungus began to grow within a few hours after implantation, but instead of the brown or orange color, as seen upon the hair, it was sulphur-yellow. Examination of pure cultures showed the cocci frequently arranged in pairs and tetrads, resembling in this respect the *Micrococcus tetragonus*. As the same fungus was obtained from the hair of different patients, it is fair to presume that this micrococcus is the one concerned in the production of the nodules upon the hairs. Upon coagulated albumin the fungus grew much more slowly.

"Although this malady has been known for some time, its true nature has only been determined within a comparatively recent period. Hoffman and Pick, in Germany, and Babes, in France, first pointed out that the red color was due to a fungus growing upon the hair, which the last-named author succeeded in cultivating upon coagulated albumin. The pigment, according to Babes, who examined it spectroscopically, resembles that produced by the *Micrococcus prodigiosus*, the fungus concerned in the production of the so-called 'bleeding host.' The identity of the two organisms, however, has not yet been proved. By scraping the epidermis in the axillary and perineal regions, organisms similar to those upon the hair have been found, but not all of these were pigmented—many of them were colorless. Balzer and Barthelemy, who have also studied the matter carefully, are of the opinion that it is much more frequent than is commonly supposed, since they were able to collect a considerable number of cases by examining individuals at random. The pigment is not always red, but may be of a yellow hue, and these authors found instances in which the parasite was present upon the axillary hairs without any pigment accompanying it. In most cases the sweat is usually abundant, but it is not yet known whether qualitative changes in this excretion are necessary for the production of the disease.

"It would seem that blondes are more frequently affected than brunettes, and that weakness and debility are predisposing conditions, although the robust are not exempt.

"As has already been mentioned, the sweat is colorless upon its excretion, and for this reason the name chromidrosis should be abandoned; the malady is, in fact, one of the hairs, and not of the sweat-gland.

"As the disease is not attended with any annoying symptoms, treatment is rarely sought unless the staining of the underwear is considerable. In the writer's cases alcoholic solutions of bichloride of mercury, two to three grains to the ounce, were employed as lotions with some degree of success; but much more speedy results would probably be obtained by first shaving the affected regions, as in this manner a large part of the fungus would be removed at once."

The Mitchell District Medical Society held its twenty-third annual meeting in West Baden Springs, Indiana, on Wednesday, Thursday, and Friday, the 12th, 13th, and 14th inst., under the presidency of Dr. Dudley S. Reynolds, of Louisville. The programme includes the following titles:

Early Amputation in Railway Injuries, by Dr. E. P. Easley, of New Albany, Ind.; Tuberculous Bone and its Early Removal, by Dr. Merrill Ricketts, of Cincinnati; Cases in Surgery, by Dr. ApMorgan Vance, of Louisville; Surgery of the Tendons, by Dr. John B. Hamilton, of Chicago; Tuberculosis of Bones and Joints, with Clinical Illustrations, by Dr. Nicholas Senn, of Milwaukee; Malignant Growths, by Dr. J. M. Kyle, of Aurora, Ind.; Mechanical Devices in Intestinal Anastomosis,

by Dr. H. Horace Grant, of Louisville; Practical Points in Rectal Surgery, by Dr. J. M. Matthews, of Louisville; Indications for the Operation for Laceration of the Cervix, by Dr. T. S. Galbraith, of Seymour, Ind.; Emergencies in Railway Surgery, by Dr. W. Patton Griffiths, of Louisville; Quinsy, by Dr. Allan Pierson, of Indianapolis; New Therapeutic Points, by Dr. I. N. Love, of St. Louis; Heroes of Peace, by Dr. Joseph Gardner, of Bedford, Ind.; Nightmare, by Dr. J. S. Moore, of New Hope, Ky.; Hay Fever, by Dr. L. T. Page, of Indianapolis; Report of a Case of Urethral Stricture, with Reflexes on the Nervous System, by Dr. D. C. Peyton, of Jeffersonville, Ind.; Balneotherapy, by Dr. C. G. Comegys, of Cincinnati; Tuberculosis of the Peritonæum, by Dr. H. O. Pantzer, of Indianapolis; Headaches, by Dr. Curran Pope, of Louisville; Experience in Skin Grafting, by Dr. A. M. Owen, of Evansville, Ind.; Tubal Pregnancy, by Dr. H. D. Wood, of Angola; Craniectomy, with Report of Case, by Dr. A. J. Banker, of Columbus, Ind.; Shoulder Presentation in Primipara, with a Case, by Dr. J. C. Pearson, of Mitchell, Ind.; Recurrent Post-partum Hemorrhage, with a Case, by Dr. T. J. Allen, of Mitchell, Ind.; Some Surprises in Prostatic Pathology, by Dr. G. Frank Lydston, of Chicago; The Clinical Aspect and Pathology of Broncho-pneumonia in Children, by Dr. Henry E. Tuley, of Louisville; Is Milk indicated in Typhoid Fever? by Dr. J. H. Stuckey, of Louisville; A Résumé of the Advance in the Department of Diseases of Children, by Dr. John A. Larrabee, of Louisville; Diseases of the Female Urethra, by Dr. L. J. Willien, of Terre Haute, Ind.; Treatment of Fibroid Tumors of the Uterus, by Dr. L. H. Dunning, of Indianapolis; The Indifference of the General Practitioner to the Diseases of Women, by Dr. W. H. Link, of Petersburg, Ind.; Galvanism for Inter-menstrual Pain, by Dr. E. Walker, of Evansville, Ind.; The Eye Clinics of London and Paris, by Dr. W. B. Meany, of Washington; Cases illustrating the Aid of Ophthalmoscopy in Diagnosis, by Dr. S. G. Dabney, of Louisville; Report on Ophthalmology, by Dr. P. Richard Taylor, of Louisville; The Correction of Astigmatic Refraction, by Dr. A. T. Cherry, of Huntington, W. Va.; Some Practical Points in Laryngology and Otology, by Dr. M. F. Coombs, of Louisville; New Devices for the Exploration and Treatment of the Nasal Passages, by Dr. Allan DeVilliss, of Toledo; The Effect of Enlarged Tonsils in Middle-ear Disease, by Dr. L. C. Cline, of Indianapolis; Intubation of the Larynx and Esophagus, by Dr. W. Cheatham, of Louisville; Pessimism in Ear Troubles, by Dr. F. C. Heath, of Indianapolis.

The American Neurological Association.—The next meeting will be held at the West End Hotel, Long Branch, N. J., on July 25th, 26th, and 27th. The annual dinner will be held on the evening of the 26th. The preliminary programme is as follows: The Diagnosis of General Paresis, by Dr. L. C. Gray, of New York; The Genesis of Hallucination, Illusion, and Delusion, by Dr. H. A. Tomlinson, of St. Peter, Minn.; A Study of the Temperature in Twenty-five Cases of General Paralysis of the Insane, by Dr. Frederick Peterson, of New York; Observations on a Case of Myxœdema, by Dr. W. C. Krauss, of Buffalo; The Etiological Significance of Heterogeneous Personality, by Dr. Smith Baker, of Utica; A Tumor involving the Angular Gyrus, by Dr. G. L. Walton, of Boston; A Case of Acromegaly, with Autopsy, by Dr. C. L. Dana, of New York; The Anatomical Changes in the Spinal Cord in an Old Case of Infantile Paralysis—A Contribution to the Cell Grouping in the Cervical Cord, by Dr. Joseph Collins of New York; Some Observations on the Relation of Chorea to Rheumatism, with the Narration of a Case, by Dr. C. Eugene Riggs, of St. Paul; Thyroidectomy in the Treatment of Graves's Disease, by Dr. J. J. Putnam, of Boston; Experiences in the Use of Testiculin and Cerebrin, by Dr. J. J. Putnam, of Boston; Tabes and Syphilis, by Dr. B. Sachs, of New York; The Paracorporeal Fissure, by Dr. B. G. Wilder, of Ithaca; Report of a case of Infectious Endocarditis, with General Septicæmia, complicated with Multiple Neuritis, by Dr. James H. Lloyd, and Dr. David Reisman, of Philadelphia; Progressive Muscular Atrophy—The Pathological Report of Two Cases, with the Exhibition of Microscopical Specimens, by Dr. G. M. Hammond, of New York; Lesion of the Thalamus and Internal Capsule in a Case of Hemianæsthesia, with Notes of Autopsy, by Dr. Charles K. Mills, of Philadelphia; A Report of Two Cases of Friedreich's Ataxia, by Dr. Frank R. Fry, of St. Louis; Exhibition of a Brain from a Case of Mixed Aphasia, with Lesion confined to Broca's

Region, by Dr. George G. Preston, of Baltimore; Peripheral Paralysis after Surgical Operations, by Dr. V. P. Gibney, of New York; A Case of Chorea of Sydenham, with Autopsy, by Dr. C. L. Dana, of New York; A New Form of Pedometer, by Dr. W. C. Krauss, of Buffalo.

The Eleventh International Medical Congress.—The executive committee announces that the congress will undoubtedly be inaugurated on the 24th of September, in the presence of H. M. the King of Italy. They dwell upon this fact particularly because there has been spread the notion of the possibility of the prorogation of this meeting. The executive committee has never deliberated upon a prorogation, but has determined upon the programme, and has taken the necessary steps to get the localities ready for September 24th. The programme will be printed, and colleagues are therefore asked to communicate promptly the titles of their papers, that they may be comprised in the programme. Abstracts and conclusions are to be presented not later than July 31st, as prescribed by Art. 11 of the statutes.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newsletters and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

NOTES ON

AMERICAN CATHETERS AND BOUGIES.

By J. W. S. GOULEY, M. D.,
SURGEON TO BELLEVUE HOSPITAL.

THE necessity of resorting to artificial means for relief of the distended urinary bladder must have compelled primitive man to improvise hollow cylinders sufficiently long and slender to enable him to pass them into the urethra and thus reach and empty the bladder. These original tubes of many ages past were probably straight, rigid, and non-metallic, but there are abundant proofs that two thousand years ago catheters were straight and curved, rigid and metallic; witness those found in the ruins of Pompeii. The employment of flexible non-metallic instruments appears to be of comparatively recent date. Soft pliable catheters of animal tissue seem to have been made during the eleventh century, but their use did not become general until the latter part of the last century, when they were constructed of woven-silk cylinders coated with an elastic varnish. Apparently the first of these elastic instruments were manufactured by the jeweler Bernard, of Paris, in the year 1779, the suggestion respecting the varnish having been made by Hérissant. Afterward Thedn, of Berlin, carried out Hérissant's idea of using India rubber dissolved in ether, but Bernard had already omitted the India rubber from the component parts of his varnish. In 1785 Pickel, of Würzburg, published the formula for a new varnish into whose composition no India rubber entered, and gave a detailed account of the manner of coating the instruments. Since then many improvements in the details of manufacture have been made, and the so-called gum catheters have gradually replaced metallic instruments in most cases requiring frequent catheterism. Bougies of the same materials were used and are still made to be used instead of the metallic, emplastie, and wax bougies.

Until recently France, Germany, and England seem to have supplied the greater part of the gum catheters and bougies used in different parts of the world. The first large manufactory of catheters in England was established many years ago by a German, Mr. Eschmann, whose successors are still engaged in the extensive manufacture of these instruments. About fifty years ago, says Mr. Stohlmann, soft catheters and bougies were manufactured in the United States by a Frenchman, Mr. Petrie, who had established himself in Philadelphia, but soon gave up the business because the demand for his instruments was too limited, on account perhaps of their being inferior to those imported from France. From that time it does not appear that any attempt was made to manufacture gum catheters in this country until the year 1879, when Mr. Roy, son-in-law of Mr. Bénas, of Paris, established a catheter factory in one of the suburbs of New York, and continued to supply, to a limited extent, the demand for gum catheters until 1890, when his establishment was closed. Thus far

the home manufacture of these catheters had affected but little the importation of French, English, and German catheters.

It has not been possible to obtain strictly accurate information relating to the importation, home manufacture, and consumption of soft catheters and bougies, but some of the merchants and manufacturers assert that the annual sale is about one million soft catheters, of which two hundred thousand are of India rubber, and one hundred and ten thousand bougies. In 1887 the importations of flexible web catheters were about as follows: From England, five hundred and fifty thousand; from France, one hundred and fifty thousand; from Germany, fifty thousand. During the year 1887 the J. Ellwood Lee Company, of Conshohocken, Pennsylvania, began to manufacture web catheters on a small scale; but, having improved the necessary machinery, soon obtained excellent results and so extended their establishment, which is perhaps the largest catheter factory known, as now to be able to manufacture three hundred and seventy-five thousand web catheters and fifty thousand bougies annually. Until the end of 1875 nearly all the soft vulcanized India-rubber catheters used in this country were imported. In 1876 the firm of George Tiemann & Co., of New York, began the manufacture of India-rubber catheters with countersunk blunt-edged eyes under the name of velvet-eyed catheters, and also some catheters of the same material with no lateral eye, but open at the vesical end. The following-named firms have since been engaged in the manufacture of soft-rubber catheters: The Davidson Rubber Company; Parker, Stearns, & Sutton; The Akron Rubber Company; The Tyer Rubber Company; and several other companies. At present, of the two hundred thousand India rubber catheters sold annually in the United States, only thirty thousand are imported. In 1891 the importation and the home manufacture of soft catheters and bougies bore the following proportions:

Cheap commercial catheters, English...	300,000
Better qualities of catheters, English...	40,000
Better qualities of catheters, French...	35,000
Better qualities of catheters, German...	10,000
Soft India-rubber catheters, English...	30,000
Cheap commercial bougies, English...	45,000
Better qualities of bougies—English, French, German	15,000
Total imported.....	475,000

Cheap commercial catheters, American ..	100,000
Better qualities of catheters, American ..	275,000
Soft India-rubber catheters, American ..	170,000
Cheap commercial bougies, American...	30,000
Better qualities of bougies, American...	20,000

Total home-manufactured..... 595,000

Thus in the lapse of a few years this industry has been developed to a degree which has already permitted in a year the exportation of one hundred thousand web catheters to England, Ireland, Scotland, France, Germany, Spain, South America, Australia, and India. There is also a large

export trade in rubber catheters. These American catheters and bougies are fully equal to those manufactured in foreign countries, and some of them are even superior, notably the commercial and the best woven-eye silk catheters, as will be seen by a comparison of the tensile strength and of the quality of the varnish of the different instruments in use. The American (Tiemann's) India-rubber catheters are superior to those of foreign importation in the construction of the eye, in the high polish of their surface, and in the smoothness of their interior.

The substances used for the framework of American web catheters are cotton, flax, ramie, and silk. The labor of weaving the cylinders is nearly the same in all qualities of web catheters, and the same varnishes are used for coating the different grades. The cost of the raw materials and the labor in finishing make the difference in price of the several qualities. In the higher grades of catheters the eye is woven, while in the lower grades the eye is punched.

Within the past few months a new catheter factory has been established in the city of New York under the firm name of C. F. Kingstone, formerly of Roy & Co. The managers are C. Bénas and C. Roy. The quality of catheters and bougies manufactured at the Kingstone establishment is fully equal to that of the best instruments ever made in Paris.

The properties of good web catheters may be stated as follows: 1. They are thoroughly, but not too thickly, coated with varnish inside as well as outside and highly polished; the varnish is pliable, not apt to crack, and resists the action of moist heat up to 212° F. 2. In length they do not exceed thirty-three centimetres (about thirteen inches). 3. In diameter they vary from two to nine millimetres. 4. The distal extremity of their single oval eye is one centimetre from the point, which is smooth and rounded; this eye, in curved, elbowed, and double-elbowed catheters, is generally lateral, but in some of these instruments the eye is superior, corresponding to the concavity of the bend, and in other cases the eye is omitted, the catheter being open at both ends, or, in addition to the eye, the vesical end is open for catheterism upon a whalebone conductor. 5. Good web catheters are firm but pliable, never rigid, from the proximal to the distal end; a web catheter with a rigid vesical extremity is a dangerous instrument, liable to cause false passages in the deeper regions of the urethra. 6. The form of the vesical extremity is in accord with its intended uses; straight web catheters are not so safely and easily used as the curved, elbowed, or double-elbowed, the curved form being the most easily introduced into strictured urethrae and in the majority of cases of enlargement of the prostate. 7. The tensile strength of the different qualities of web catheters was ascertained by experiment to be as follows: The breaking strain of an English commercial catheter was forty-two pounds, the breaking strain of an American commercial catheter was fifty-four pounds, the breaking strain of an American Lisle-thread catheter was fifty-six pounds, the breaking strain of an American silken-linen catheter was sixty pounds, the breaking strain of an English silk-web catheter was eighty-five pounds, and an American silk-web catheter of best quality

was then tested to one hundred and fifteen pounds without breaking, but the varnish was stripped off at each end.

When it is necessary to retain a catheter in the urethra and bladder, the physician should select one which has not been too thickly coated with varnish. The highest grade of catheter is not always the best for this purpose, because in the course of twenty-four hours the urine filters through the internal wall of the catheter, the silk webbing is saturated, swells irregularly, and uplifts here and there the coating of varnish, which soon scales off, while the Lisle-thread, silken-linen, and those silk catheters with thin external coating resist longer the action of the urine, and do not lose their smoothness after being retained forty-eight hours in the bladder. If, however, the interior of all web catheters were thoroughly varnished, and thus rendered impervious to moisture, there would be no irregular uplifting of the surface and no scaling.

The American commercial catheters have lately been much improved in quality, and they may be found very useful in hospital as well as in private practice. Their cost is little as compared to that of the higher grades. A catheter of this kind may be used for a single day and thrown away, or may be repeatedly boiled without injury, and used as long as the surface of the instrument retains its smoothness. These improved instruments are known as "tent-catheters."

No catheter whose surface is fissured or otherwise roughened should be passed into the human urethra, because it would not only irritate this canal, but convey therein septic germs. For general use, physicians will find it advantageous to purchase the higher grades of web catheters, because, with proper care, they last long and retain their suppleness and smoothness. After having used an American silk-web catheter three hundred times, its surface was found to be as smooth as in the beginning. The instrument was then retired from active service to be preserved as an illustration of the excellence of home manufacture. Another American silk catheter was used twelve hundred times by a patient, and was set aside only because its surface had become irregular, although it was not cracked.

It may now be proper to make a few suggestions respecting the kind of care web and soft-rubber catheters require to render their employment safe to patients and easy to physicians:

1. All web catheters should be kept at full length and never coiled; otherwise the varnish will surely crack.

2. Web catheters should be loosely wrapped in *dry* antiseptic gauze and preserved in tightly closed metal cases until wanted for use. After they have been used they should be carefully cleansed, thoroughly dried inside and outside, then replaced in the gauze and case, or they may be carried in hollow walking sticks.

3. Soft-rubber catheters should be kept at full length, never coiled, and should be wrapped in *moist* antiseptic gauze and preserved in tightly corked glass tubes capable of containing three or four catheters, because exposure to the air leads to rapid oxidation, which causes the instruments to become hard and brittle.

4. Before using a rubber or a web catheter it should be dipped for a minute in a one-per-cent. carbolic-acid solution, but not longer, as carbolic acid, even in such a weak solution, acts injuriously upon the varnish of web catheters as well as upon rubber catheters by prolonged contact.

5. Before using a web catheter it should be slightly warmed by friction in the hands and by a momentary immersion in warm one-per-cent. carbolic-acid solution to prevent cracking of the varnish, particularly during cold weather.

6. Web and rubber catheters are much injured by fats of all kinds, by glycerin, by saliva, and by vaseline, which, however, seems to be the least hurtful of these lubricants. If used at all, it should be in the smallest quantity—just enough to very thinly coat the catheter. Some physicians reject not only the fatty but all other lubricants, and think it sufficient to moisten the catheter with warm water. More soft catheters are destroyed by the excessive use of fatty substances than by any of the many other abuses to which they are subjected. Therefore there is need of a lubricant which shall not be irritating to the urethra, and which shall contain no fat and no free alkali to deteriorate the varnish of web catheters and soften rubber catheters. After examining different substances it was thought that a watery solution of dry soap, with the introduction of some ingredient to add lubricity to its viscosity, would be likely to answer the purpose. On consultation with Dr. Charles Rice, the chemist of the Department of Public Charities, the following formula for a saponic lubricant was agreed upon:

White Castile soap, powdered. . . . 360 grains.

Tincture of quillaja (1 in 5). . . . $\frac{1}{2}$ fluidounce.

Water, a sufficient quantity.

(Product, about 1,420 grains.)

Mode of Preparation.—Pour two fluidounces of water into a tared capsule, heat the water to boiling, and add the soap. Continue the heat and stir until a homogeneous jelly is produced, then add enough hot water to make the contents of the capsule weigh two troy ounces and a half (1,200 grains), after which strain the mixture through cotton gauze. Lastly, pour in the quillaja tincture. This mixture when cool has the consistence of thick honey, possesses both viscosity and lubricity in a sufficient degree, and is free from any agent likely to be deleterious to the urethra or to the catheter. It may be preserved in an aseptic state in small collapsible tubes. The lubricant may be perfumed, or one per cent. of pure carbolic acid may be added. Among the experiments tried was an addition to the mixture of two drachms of *Chondrus crispus* jelly (*National Formulary*). This slightly increased the lubricity while it greatly increased the fluidity of the mixture. It is likely that the *Cetraria islandica* will yield similar results.

7. All web catheters are liable to harden and to be unfit for use in the course of a few years, especially when they have not been in daily use. On the first appearance of the hardening process the instruments should be cast aside.

8. Rubber catheters harden and are brittle in about two

years, or even sooner, if unused and exposed to the air. But when daily lubricated with fatty substances they seldom last more than three or four weeks, then swell, lengthen, and undergo a process of softening which renders them liable to be torn across during withdrawal, so that often several inches of this deteriorated rubber remain in the bladder.

9. After using a web catheter it should be well washed by forcing a stream of water through the instrument, which should then be dipped for a minute into a one-per-cent. carbolic-acid solution, thoroughly dried, wrapped in dry antiseptic gauze, and inclosed in a metal case. The drying process is begun by shaking off briskly the last drops of water from the interior of the catheter, which may then be exposed to 120° F. of heat in a dry sterilizer or in any other way that may be safe and convenient.

10. Web catheters, even "ten-cent catheters," may be rendered aseptic also by boiling for ten or fifteen minutes, then drying thoroughly in a sterilizer, when they will be ready for use. During ebullition the catheters should not be coiled, but kept at full length and away from the bottom of the boiler. Dry sterilization may be accomplished as well just before using the catheter, but care should be taken to prevent the instrument from sticking to the metal.

11. Inasmuch as some time is necessarily consumed in the drying process, it is more convenient to a patient who is obliged to catheterize his bladder five or six times every twenty-four hours to be supplied with ten or twelve web catheters (No. 9 or 10 of the English scale), and to use two catheters each day, so that the same catheters may be used only once every five or six days. This plan has been pursued by a number of patients, who have all fully appreciated its advantages. In one of these cases, the patient relieving himself eight times daily, the catheters so used were carefully examined seven months after and found unaltered and in the best condition, each instrument having been used about a hundred and forty times.

American web bougies are made of the same materials as those of catheters. They are therefore of the same grades—cheap commercial cotton, flax, and ramie. A cotton olivary bougie made by the Lee Company happens to be the best for general use. It is solid, slender in the first three inches of its shaft, and consists of a number of layers braided one upon another and coated with the same varnishes as the catheters, but it is distinguished from other bougies by its vermilion color. It has no ivory tip, is completely coated, and therefore easily rendered aseptic. The care of wrapping in gauze and inclosing in a metal tube is needed to preserve the instrument, which should be cast aside if it becomes fissured. It should be slightly warmed before introduction. No fats should be used as lubricants.

Whalebone bougies were used in France early in this century and also in the United States. Dr. H. G. Jameson (*Medical Recorder*, 1827) spoke well of the utility of whalebone bougies of "the size of a small knitting needle" in the treatment of urethral strictures. Whalebone bougies are of two kinds—those with olivary point and elbowed, about one millimetre in diameter, to serve as conductors

for larger instruments, and those for the dilatation of narrow strictures. The second, also elbowed and olive-pointed, are not over one millimetre in diameter for the first three inches, thence increasing gradually in diameter so that at five inches they are equal to Nos. 2, 3, 4, 5, 6, and 7 English scale, the set comprising six bougies as indicated by these numbers. All whalebone bougies require to be thinly coated with carbolized vaseline and preserved in metal tubes; otherwise they become dry and brittle and are soon destroyed by parasites.

THE

DIAGNOSIS OF RENAL INSUFFICIENCY.*

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IN the diagnosis of renal insufficiency we consider the symptoms which are remote from the kidneys, and also the immediate renal symptoms as revealed in abnormal conditions of the urine. Sometimes the symptoms and general appearance of a patient lead us to suspect nephritis, but uranalysis in the case gives contradictory evidence. On the other hand, we not infrequently find evidences of organic renal lesion by the examination of the urine in cases presenting very few, if any, symptoms suggesting disease of the kidneys. Too often the diagnosis of renal insufficiency is made only after appreciable albuminuria has been discovered or casts have been found in the urine. Our observations have led us to believe that a large number of individuals suffer from chronic retention of toxic substances which should properly be eliminated by the kidneys, notwithstanding the fact that several uranalyses in such cases fail to reveal the presence of either albumin or casts. There is no great difficulty in diagnosing renal insufficiency, actual or probable, in those cases yielding unmistakable evidence of disease of the kidneys upon cursory examinations of the urine. But in those cases presenting no albuminuria more difficulty arises and more crucial tests must be instituted for signs of renal insufficiency.

Permit me first to refer to some of the more common and prominent symptoms of the toxæmia arising from sluggish renal elimination. Those referable to the digestive organs and to the nervous system are usually quite pronounced, although the whole organism suffers more or less. Different cases present different groups of symptoms, and, indeed, the variety of disturbances depending upon toxæmia of renal origin renders the clinician the more liable to mistake in assigning them to their true cause.

The severest symptoms of uræmia may supervene suddenly in cases having apparently trivial renal incompetence, while, on the contrary, patients with abundant and constant albuminuria and with urine containing many renal casts may live for years with only mild manifestations of uræmia.

The grave convulsions, delirium, and coma appearing suddenly in cases of acute or long-standing well-recognized

nephritis need not here engage our attention, as they are not likely to escape the notice of the most careless clinician. But to those cases wherein the nature of the toxæmia is obscure I ask your attention. Common symptoms observed in these cases are headache, dizziness, and pressure in the head, neuralgias in various regions of the body, persistent insomnia, mental depression, great nervousness, and a host of manifestations ordinarily seen in neurasthenia. The tongue is usually coated and the taste bad. Anorexia, nausea, vomiting, gastralgia, gastric and intestinal flatulence, weight, burning, and uneasiness in the epigastrium, constipation, sometimes diarrhœa; some or all of these may exist. Ocular symptoms may be complained of and albuminuric retinitis may be discovered (1) before albumin and casts appear in the urine. The heart is often weak and the capillary circulation is poor. The skin is dry, harsh, and scaly, or is muddy, loaded, and relaxed. Loss of flesh is common and muscular strength is much impaired, while nervous energy is at a low ebb and general vitality is usually greatly reduced. Anæmia exists in almost all cases, and oxygenation of the blood and tissues is usually deficient.

The diagnosis of renal insufficiency necessarily hinges upon the examination of the urine, and the following classification may afford some clearness in the study of the clinical inferences to be drawn from the various findings by uranalysis:

I. Cases in which are found pronounced and persistent albuminuria with the presence of renal casts.

II. Cases having albuminuria and renal casts incessantly—i. e., at one analysis they are plentiful while at another they are absent.

III. Cases having albuminuria without the presence of casts.

IV. Cases showing the presence of renal casts without albuminuria.

V. Cases presenting neither albuminuria nor casts, but showing a markedly lowered elimination of urea and other solids.

VI. Cases of renal insufficiency from reflex paralysis of, or other interference with, the nerves presiding over the function of the kidney.

Permit me to discuss each of the classes separately and to cite a few illustrative cases.

Class I embraces cases of Bright's disease that are so commonly seen and recognized as to render it superfluous were I to record any in this short paper.

CLASS II. CASE I.—H. C., aged fifty-four years, never severely ill. Has smoked and drank steadily for many years but not to great excess. Lately suffered from repeated attacks of severe gastralgia, during which vomiting occurred. Between the paroxysms of gastralgia appetite was good, but gastric flatulence continued. Is constipated. Pulse of high tension, with arteries sclerosed. Loss of flesh and strength.

Uranalysis, April 4, 1893.—Reaction superacid; very high-colored; specific gravity, 1.020; albumin present in amount proportionate to 0.90 to the litre; total amount in twenty-four hours, 320 c. c.; urea, 10.240 grm. Microscopically, large number of hyaline and slightly granular casts, and calcic oxalate crystals.

* Read before the Erie County Medical Society, June 13, 1893.

Uranalysis, May 5, 1893.—High-colored; specific gravity, 1.029; no albumin; no sugar; total amount, 992 c. c.; urea, 22.816. Microscopically, no casts found.

Uranalysis, May 22, 1893.—Specific gravity, 1.020; no albumin; total amount, 928 c. c.; urea, 20.416 grm. Microscopically, no casts found.

CASE II.—This case occurred in the practice of Dr. Rochester, and he very kindly handed me the following report. I also made several urinalyses in this case:

Mrs. L., symptoms: persistent vomiting, occasional diarrhoea, headache, dizziness, insomnia, inability to stand on account of muscular weakness of legs. Physical examination showed evidence of chronic bronchitis and asthma, very weak heart with mitral insufficiency. Had attacks of angina pectoris. Skin yellow, thick, and very inactive.

Uranalysis, September 25, 1892.—Volume in twenty-four hours, 960 c. c.; color, iv Vogel; odor, urinous; reaction, acid; specific gravity, 1.003; urea, 6.48 grm.; albumin, trace; sugar, none; small granular casts.

Uranalysis, October 2, 1892.—Specific gravity, 1.005; no albumin; volume in twenty-four hours, 1,200 c. c.; urea, 2.00 grm.; no casts.

Uranalysis, October 23, 1892.—Volume in twenty-four hours, 1,680 c. c.; specific gravity, 1.005; urea, 5.67 grm.; albumin present; granular and epithelial casts.

Uranalysis, October 30, 1892.—Volume in twenty-four hours, 800 c. c.; specific gravity, 1.005; urea, 3.24 grm.; no albumin; no casts.

CASE III. CASE I.—Mrs. J. C., aged thirty; pregnant seven months with fourth child. Symptoms, violent and persistent headache with restlessness, insomnia, anorexia, coated tongue, vomiting, and constipation.

Uranalysis, May 2, 1892.—Reaction mildly acid; high-colored; specific gravity, 1.015; albumin present in moderate quantity; no sugar; no casts found.

Uranalysis, May 19, 1892.—Reaction somewhat superacid, high-colored and smoky; specific gravity, 1.018; albumin, small amount; no sugar; no casts found.

Several subsequent examinations of this patient's urine revealed the presence of albumin without renal casts.

CASE IV. CASE I.—F. W., aged twenty-six. Complained much of his stomach for several months and had used the stomach-tube for relief. Had nausea and some gastric pain. Bowels obstinately constipated; skin very dry and scaly. Nervousness and sleeplessness existed, with general mental and physical wretchedness. Pulse tense and heart irritable, pounding, and irregular in rhythm.

Uranalysis, March 31, 1891.—Reaction superacid; specific gravity, 1.022; albumin absent; sugar absent; total amount in twenty-four hours, 320 c. c.; urea, 10.880 grm.; abundant epithelial, hyaline, and granular casts.

Uranalysis, April 1, 1891.—Reaction superacid; high color; specific gravity, 1.020; no albumin; epithelial and granular casts, uric-acid crystals.

Uranalysis, April 11, 1891.—Reaction mildly acid; color clear yellow; specific gravity, 1.022; no albumin; no casts found.

Uranalysis, April 15, 1891.—No albumin; no casts; total amount twenty-four hours, 992 c. c.; urea, 16.856.

CASE II.—Mr. B. C., aged seventy-one. Appetite poor, thirst constant; constipation; tongue coated, pale, and tremulous. Patellar reflexes absent; staggers with eyes closed; locomotion difficult; blood-vessels somewhat hardened.

Uranalysis, December 1, 1892.—Reaction neutral after standing; color reddish-yellow; specific gravity, 1.018; no albumin; total amount twenty-four hours, 1,120 c. c.; urea, 10.080; calcic oxalate crystals and hyaline casts.

CASE III.—Mr. A., aged sixty-eight. Suffering from great general weakness, loss of appetite, gastric distress, dyspnoea, left hydrothorax, and chronic diarrhoea.

Uranalysis, August 31, 1892.—Superacid, small sample; no albumin; granular and hyaline casts.

Uranalysis, September 9, 1892.—Reaction acid; color pale yellow; specific gravity, 1.015; no albumin; total amount twenty-four hours, 875 c. c.; urea, 25.00 grm.; uric-acid crystals, urate of ammonia, granular casts abundant.

CLASS V. CASE I.—Mr. J. H., aged about fifty-eight. Suffering from general weakness, poor appetite, constipation, insomnia, mental depression, and indefinite symptoms of chronic toxæmia from some cause.

Uranalysis, January 7, 1892.—Reaction faintly alkaline after standing; color pale yellow; specific gravity, 1.008; total amount twenty-four hours, 1,728 c. c.; total solids, 475 grains; urea, 12.046 grm.; no albumin; triple phosphate crystals; no casts.

Uranalysis, January 14, 1892.—Specific gravity, 1.006; no albumin; total amount twenty-four hours, 1,664 c. c.; urea, 13.312 grm.; total solids, 364 grains; microscopically, negative.

Uranalysis, January 24, 1892.—Specific gravity, 1.012; total amount twenty-four hours, 1,536 c. c.; total solids, 633 grains; urea, 10.752 grm.; no albumin; no casts.

I examined this patient's urine many times, but did not find albumin or casts. He improved greatly under the treatment that will be described by Dr. Rochester, as did indeed almost all the cases I report in this paper.

CASE II.—Mrs. P., widow, aged sixty. Symptoms: poor appetite with weight and burning in the epigastrium, flatulence very annoying. Bowels said to be regular, but abdominal palpation gives suspicion of fecal masses in colon. Tongue red with granular surface; skin loaded; pulse weak, small, and frequent.

Uranalysis, February 2, 1892.—Reaction moderately acid; high-colored; no sediment; specific gravity, 1.016; total amount twenty-four hours, 928 c. c.; total solids, 563 grains; urea, 14.920; no albumin; no sugar; microscopically, negative.

Uranalysis, February 8, 1892.—Reaction acid; color yellow; specific gravity, 1.010; no albumin; total amount twenty-four hours, 800 c. c.; urea, 6.00; total solids, 275 grains; microscopically, negative.

Uranalysis, February 17, 1892.—Specific gravity, 1.008; no albumin; total amount twenty-four hours, 1,152 c. c.; urea, 5.760 grm.; solids, 316 grains; microscopically, negative.

CASE III.—Mrs. B., widow, aged sixty. Complains of great nervousness and obstinate insomnia, which have gradually been increasing in severity for several months. Says she feels terribly depressed and would rather suffer pain than endure the nervous tension that she has, which does not seem to relax a moment. Complains of nothing else. Upon examination, I found her left ventricle weak, flabby, and dilated; pulse small and weak; skin dry and pale; extremities cold.

Uranalysis, May 25, 1893.—Reaction faintly acid; color, smoky, pale yellow; specific gravity, 1.006; no albumin; total amount in twenty-four hours, 1,280 c. c.; urea, 5.120. Microscopically, negative.

Uranalysis, June 5, 1893.—Total amount in twenty-four hours, 608 c. c.; urea, 11.55; specific gravity, 1.020; no albumin; no casts.

CASE IV.—Mr. J. W., aged thirty-six, well nourished; weight, one hundred and seventy pounds. Chief complaint, nausea and vomiting, especially in the morning; does not use alcohol immoderately; nausea lately has occurred immediately after every meal and nothing but vomiting relieves it. Some

days nausea continues without remission for many hours and becomes almost intolerable.

Uranalysis, April 4, 1893.—Reaction normally acid; color, clear yellow; specific gravity, 1.007; no albumin; no sugar; total amount in twenty-four hours, 2,560 c. c.; solids, 616 grains; urea, 10.240; microscopically, negative.

Uranalysis, April 9, 1893.—Specific gravity, 1.010; no albumin; volume in twenty-four hours, 2,016 c. c.; urea, 8.064; no casts.

Uranalysis, April 9, 1893.—Specific gravity, 1.010; no albumin; total amount in twenty-four hours, 2,016 c. c.; urea, 8.064; microscopically, negative.

Uranalysis, April 15, 1893.—Specific gravity, 1.005; no albumin; total amount in twenty-four hours, 2,128 c. c.; urea, 6.384; microscopically, negative. Many subsequent examinations of this patient's urine yielded results similar to the above.

CASE V.—Miss H., aged twenty-four; only serious illness was scarlatina when thirteen years old. Complains of gastric weight and distress after eating, with a good deal of gastric flatulency; some sour stomach; no pain. Has been constipated for years and is so now. Has some headache. Thinks all her trouble lies in her stomach and in her constipation. Circulation very poor; hands always cold and clammy.

Uranalysis, June 1, 1893.—Reaction neutral after standing; color, yellow; specific gravity, 1.008; albumin doubtful, perhaps faint trace; total amount in twenty-four hours, 1,152 c. c.; urea, 3.456; no casts.

Uranalysis, June 9, 1893.—Total amount, 416 c. c. in twenty-four hours; specific gravity, 1.027; albumin doubtful, perhaps very faint trace; urea, 12.064; no casts.

CLASS VI.—In this class I have no cases that I can catalogue positively, although I think many cases of renal insufficiency in pregnant women depend upon disturbance of the function of the kidney reflexly from the effect of the pregnant uterus upon its nerve supply. This matter has been exhaustively studied by Alexander Peyer (2), wherein he speaks of anuria of nervous origin, and describes the following case: "I treated a case sent to me by a colleague from the country, the patient being a very hysterical woman with a retroflexed uterus. Frequently the woman went for two or three days without passing a drop of urine and felt no desire to do so. Then the urine that she passed at a time would amount to about five or six ounces and had a specific gravity of 1.018. The urine became cloudy as soon as passed, owing to the presence of the uric-acid salts. The urine always showed traces of albumin. By replacing the uterus this functional neurosis of the kidneys disappeared."

Dr. R. Caspar (3), in a monogram upon this subject, says in substance that, just as in the case of the sweat glands, which, by the influence of special secretory nerve filaments, secrete independently of the circulation, so the kidney functionates independently of the rapidity or tardiness of its circulation. He thinks influences disturbing this special innervation bring about not only temporary abnormal function, but actual renal disease. Dr. Caspar thinks renal paralysis may occur reflexly from abnormal conditions of the uterus, ureter, bladder, prostate, and peritonæum, and from great depression with general enfeeblement of the nervous system. He cites many cases, among which is one of uræmia in a puerperal woman resulting in

death, in which case he made the diagnosis "reflex puerperal anuria and uræmia."

Anuria and oliguria of nervous origin have been noticed and studied by Benedikt, Denian, Charcot, Hermann, Cohnheim, and Uitzmann.

In glancing through the literature upon disorders of the kidney, I found several references touching upon the subject matter of this paper at one point or another, and may be allowed to summarize them here.

Coquet (4) presents a study of nephritis without albuminuria. He cites cases in which albuminuria was absent part of the time, others in which it was absent until just before death, and still others in which it was absent all the time. He does not regard albuminuria as diagnostic of the presence of Bright's disease, but thinks the toxicity of the urine is the surest criterion of that disease.

Chabrely (5) says albuminuria may be entirely absent in pronounced cases of nephritis, and in others is not an accurate index to the degree of renal alteration. On the other hand, Porter (6) considers the quantity of albumin in the urine to be always in direct proportion to the extent of degenerative change in the tubular epithelium of the kidney. Mesnard (7) cites several cases of undoubted Bright's disease in which albuminuria did not occur. In the diagnosis of renal insufficiency this author places great value upon the estimation of the toxicity of the urine, according to Bouchar's method of intravenous or hypodermic injection of the filtered urine in sufficient quantity to cause death in the animal experimented upon. Ordinarily for every kilogramme of the weight of a rabbit, fifty c. c. (one ounce and three quarters) of normal urine are necessary to produce lethal poisoning. Therefore, if more than this amount of urine is required to cause death, it is evident that the kidneys of the person from whom the urine is taken are not eliminating sufficient poison.

In references to acute manifestations of impaired renal elimination without the ordinary evidences of disease of the kidneys, Hare (8) reports, among several cases, one in the person of a man who, though in apparently perfect health, suffered from frequent attacks of severe headache, cold extremities, drowsiness, and nausea. During the attacks a very small amount of hyperlithuric urine was voided. The attacks could always be obviated by drinking freely of diuretic water when increased specific gravity of the urine was noted. Sir Andrew Clark (9) ascribes many nervous symptoms and a general condition of indisposition to renal impotence in which the urine is scanty, of low specific gravity, and deficient in urea, although no evidence of structural disease of the kidney exists.

Many observations of a like nature to the foregoing are to be found in the literature of this subject.

I am indebted to the kindness of Dr. Stockton for the privilege of reporting several of the cases in this paper; the others occurred in my own practice. I owe my thanks to Dr. Rochester for the case he so kindly furnished me.

From the foregoing imperfect though suggestive study we may draw the following conclusions:

1. From the standpoint of scientific internal medicine, no patient suffering from whatever ailment receives full

justice at our hands unless we examine his urine carefully.

2. Our examination of the urine often fails to throw light upon a case that repeated uranyses will afford.

3. The fact that albumin and casts are not found in the urine is not sufficient warrant for concluding that renal insufficiency does not exist.

4. Notably lowered elimination of urea by the kidneys exists in cases presenting no evidence of renal disease by superficial uranalysis.

5. The examination of the urine for the total urea and other solids voided in twenty-four hours is fully as important as the qualitative examination for albumin.

6. The microscope is indispensable in uranalysis.

7. Very valuable data for the application of therapeutic measures are obtained by repeated and painstaking uranalyses.

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TREATMENT OF RENAL INSUFFICIENCY.

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THE treatment of renal insufficiency should depend upon the character of the insufficiency and the cause of the inefficient action of the kidneys.

The insufficiency may be one in which the total amount of excretion is diminished, one in which the amounts of the different constituents of the urine are altered in relation to each other, or one in which abnormal constituents are present.

The first class of cases—that in which the total amount of excretion, fluid and solid, is diminished, the amounts eliminated, however, bearing a proper relation to each other—is generally the result of an imperfect metabolism and not due to any especial diseased condition of the kidney. It is best treated by attention to the general metabolic processes, the use of exercise, baths, vigorous skin friction, attention to daily evacuations from the bowels, and the free use of diluents, particularly distilled water or one of the mild natural spring waters, such as the Bethesda, Poland, or Buffalo Lithia water.

The second and third classes that I have mentioned may be conveniently subdivided according to the scheme presented by Dr. Allen Jones, and I will follow his classi-

fication in the remarks that I may have to make as regards treatment, presenting one or two cases in each class illustrative of the plan of treatment suggested.

Cases of acute nephritis and certain cases of chronic nephritic degeneration of the parenchymatous and diffuse types would come under the heading of the first class—"those in which persistent and pronounced albuminuria is found together with renal casts." How shall we treat them? They are generally accompanied by œdema of various parts of the body, which is marked in proportion to the seriousness of kidney insufficiency; there is also generally well-marked anæmia. The indications are clear: Give the inflamed or degenerated organ as much rest as possible by relieving the blood pressure in its capillaries and by opening other avenues for elimination of the excrementitious matter that should under normal physiological conditions be passed out in the urine.

Nothing could be more wrong than to give diuretics under such conditions. Let me cite a case in point:

On August 7, 1892, W. F. T., a young man, consulted me, presenting the following history: In January, 1892, he had had diphtheria, from which he had recovered, but about a month afterward he had noticed some puffiness about his eyes; this had very gradually increased and spread, so that when he came to my office he had general œdema of the subcutaneous areolar tissue, ascites, and œdema of both lungs, headache, dizziness very marked, and tendency to constipation. There was no evidence, upon physical examination, of disease of the heart, but there was great tension of the pulse and some thickening of the arterial coats. Examination of the urine showed the following: Amount in twenty-four hours, 550 c. c.; color dark; transparency cloudy; reaction acid; specific gravity, 1.018; urea, 6 grammes; albumin abundant; sugar, none; microscope, amorphous urates; hyaline and a large number of small granular casts.

When this case came under my observation I had just read in one of the journals an article on the use of diuretin in just such cases with remarkably good results. Although I felt that the use of such a drug was contrary to a rational interpretation of the symptoms, nevertheless I determined to try it, because I had been so much impressed by the wonderful results reported. I put the patient to bed, put him on milk diet and the diuretin, gave four days' good trial, with the result that the urine steadily diminished in amount, the œdema steadily increased, and the headaches became almost unbearable. I then stopped that drug, determining that never again should I be tempted to act contrary to the dictates of reason in a matter of therapeutics. I continued to keep the patient in bed and kept up the milk diet, but I called upon his skin and his bowels to relieve his kidneys, with the most gratifying results. He was made to sweat by steam baths in bed given by means of the apparatus I show you here. The technique of such a bath is simple, so that the bath can readily be given in a private house.

The patient is placed entirely nude between blankets in bed and covered with two extra blankets; the boiler B is a little more than half filled with water, which is brought to the boiling point; the cover C is then firmly fastened on and the nozzle D is introduced under the bed-covering, so that the patient becomes enveloped in steam; this bath is kept up for half an hour to an hour, according to the effect produced. These steamers may be procured from Walbridge & Co., in this city, for three dollars apiece. These baths were given every day for a week or two; then the intervals between the baths were length-

ened until two a week sufficed to keep him in good condition. At the same time that the sweats were instituted copious evacuations from the bowels were produced by means of calomel, fol-

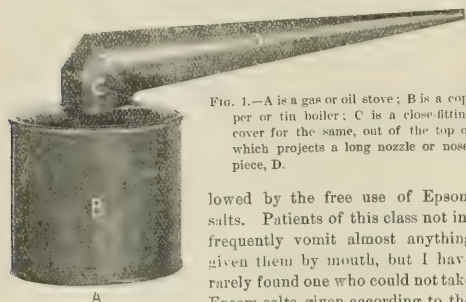


FIG. 1.—A is a gas or oil stove; B is a copper or tin boiler; C is a close-fitting cover for the same, out of the top of which projects a long nozzle or nose-piece, D.

lowed by the free use of Epsom salts. Patients of this class not infrequently vomit almost anything given them by mouth, but I have rarely found one who could not take Epsom salts given according to the following plan: Fifty or 60 c.c. of the saturated solution of the salts is given without dilution every two hours until watery movements begin.

After free catharsis had been once produced in this manner, one or two daily evacuations were kept up by one daily dose of the saturated solution of Epsom salts. After a few days of this treatment, together with dry cupping of the chest to relieve the oedema and congestion of the lungs, the ascites and anasarca rapidly subsided. Tinctura ferri chloridi in 150 c.c. doses was added to the medication, and vigorous massage followed each steam bath.

On October 4, 1892—two months after treatment had been begun—the analysis of urine was as follows: Amount in twenty-four hours, 2,400 c.c.; color, yellow; transparency, slightly cloudy; reaction, acid; specific gravity, 1.012; urea, 16.47 grammes; albumin, abundant; sugar, none; microscope, granular and hyaline casts.

Three months later—five months after treatment had been begun—there was no material difference in the analysis from that just given. The patient was feeling much better, the oedema pulmonum had not reappeared, there was no fluid in the abdomen, and only slight oedema of the legs and occasionally puffiness of the eyelids.

In Class II, those having albuminuria and renal casts inconstantly present, I will present two cases for your consideration:

CASE I.—Mrs. G. P., aged sixty-five. Attacks of dizziness, nausea, weakness, shortness of breath, and persistent watery diarrhoea, with occasional blood and mucus. No evidence of lesion of brain or spinal cord; lungs slightly emphysematous in patches; heart muscle weakened and left ventricle slightly dilated; no evidence of valvular lesion. Examination of urine March 16, 1893: Amount, 400 c.c.; color, brownish-red, cloudy; reaction, hyperacid; specific gravity, 1.015; urea, six grammes; albumin, none; sugar, none; microscope, epithelium of various kinds, several small granular casts.

I wish to call especial attention to this urine, because it would pass the ordinary insurance examination, the microscope not being used when there is no albumin or sugar present, and the specific gravity is 1.015. But the quantitative examination of the total amount passed in the twenty-four hours shows immediately that the cause of her dizziness, nausea, shortness of breath, weakness, and diarrhoea is the poison locked up in her system that should be carried off in the form of urea.

She was given daily hot-air baths, plain digestive diet, a little strophanthus and strychnine (in spite of her diarrhoea),

and Bethesda water to drink. In two weeks the analysis of her urine showed: Amount, 750 c.c.; color, yellowish red; reaction, hyperacid; specific gravity, 1.017; urea, 25 grammes; albumin, trace; sugar, none; microscope, considerable columnar epithelium, granular and epithelial casts.

The diarrhoea had ceased without the administration of any diarrhoea mixture; the nausea had disappeared, and she was hungry and digested her food well; the dizziness, shortness of breath, and general muscular weakness had markedly diminished, though still present. The patient felt so much better that she stopped the hot-air baths, but takes a very hot tub-bath once or twice a week and keeps in very fair shape.

How to give a hot-air bath at home is, not infrequently, considered a matter of great difficulty, whereas it really is very simple. It can be given in one of two ways. If the patient is strong enough to stand it, it can be given in a chair. A firm cane-seated chair is chosen; over the cane seat a board about six inches wide is placed; the patient, in a nude condition, sits upon this board, a blanket under his feet; another blanket is then thrown around the patient and the chair, so that only the patient's head remains outside, the blanket being gathered around the neck and fastened at the back, the laps folding one over the other down the outside of the back of the chair to the floor; over the blanket a rubber sheet is fastened in the same manner. An alcohol lamp, resting on a tray, is now introduced from behind and placed under the chair and lighted, the blanket and rubber sheet being closed at the back. Cold cloths are kept on the patient's head during the bath. A half hour generally produces copious sweating.

Another method of giving the hot-air bath is by means of the apparatus here shown. The patient lies in bed as

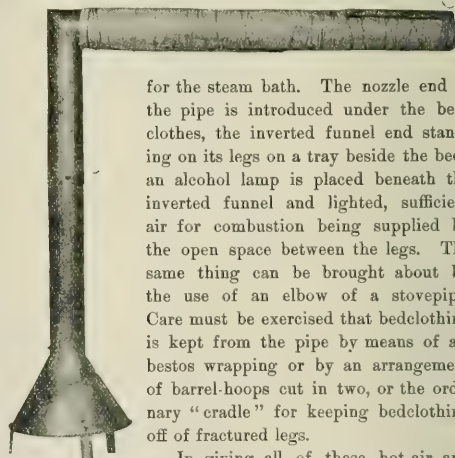


FIG. 2.

for the steam bath. The nozzle end of the pipe is introduced under the bed-clothes, the inverted funnel end standing on its legs on a tray beside the bed; an alcohol lamp is placed beneath the inverted funnel and lighted, sufficient air for combustion being supplied by the open space between the legs. The same thing can be brought about by the use of an elbow of a stovepipe. Care must be exercised that bedclothing is kept from the pipe by means of asbestos wrapping or by an arrangement of barrel-hoops cut in two, or the ordinary "cradle" for keeping bedclothing off of fractured legs.

In giving all of these hot-air and steam baths, the comfort of the patient is materially increased if cloths wrung out in cold water are kept upon the head. A copious draught of hot water, with a little whisky in it, often starts the sweat when it seems slow in coming. The regular use of the whisky, however, is generally not to be recommended in these cases.

CASE II.—Mrs. F. C. P., aged seventy-three, was seen March 2, 1893. She was sitting up in bed gasping for breath and suffering from repeated attacks of angina pectoris which recurred at constantly diminishing intervals. She was markedly constipated, her head ached violently, and she vomited whatever she tried to eat. Her family was grouped about her in expectation of her immediate demise. Examination showed a spare, pale woman with thickened and contracted arteries, oedema of lower extremities, congestion and oedema of both lungs, aortic obstruction and insufficiency, dilated left ventricle, and occasional safety valve yielding of the tricuspid valve. The amount of urine passed in twenty-four hours was stated as less than 180 c. c., but, as the exact amount was not known, the urea was not estimated. It contained albumin and epithelial and granular casts.

I ordered for her a hot footbath given in bed every two hours; dry cupping of the chest in front and behind; the use of Bethesda water as a drink; and strophanthus, strychnine, and caffeine as medication; a diet of peptonized milk; opening of the bowels with calomel and Epsom salts.

In two days the urine had increased to 1,000 c. c., containing twenty-four grammes of urea; albumin and granular casts still present.

The footbaths were discontinued and a steam bath given every day. Under this treatment she steadily improved—so much so that she thought best to discontinue treatment for a while, when a return of former symptoms warned her to begin again. Her urine was examined every week for eight weeks. At the time she stopped treatment the amount of urine dropped to 713 c. c. and the urea to 8.556 grammes. Upon resuming treatment, the urine rose in amount to 1,200 c. c. and the urea to 21.6 grammes. The last two examinations have revealed neither albumin nor casts present, and the old lady considers herself well, but she keeps up her steam baths once or twice a week.

I will briefly relate three more cases, one in Class IV and two in Class V, as these classes are the most frequently overlooked:

The case in Class IV—those showing renal casts without albumin—is Mrs. B., aged thirty-four. She complained of insomnia, restlessness, violent headache, nausea and vomiting, marked constipation, intractable cough, and cardiac palpitation. Without relating the examination of the case in detail, let it suffice to state that the analysis of urine was: Amount, 100 c. c.; color, brownish-black, cloudy; reaction, hyperacid; specific gravity, 1.025; urea, 2 grammes; albumin, none; sugar, none; microscope, epithelial casts.

She was given calomel and Epsom salts, as related above; a hot footbath in bed every three hours; distilled water to drink; beef peptonoids for food for a day; and then a gradually increased diet. In five days, on March 10th, the urine analysis was as follows: Amount, 1,920 c. c.; color, greenish-yellow; reaction, hyperacid; specific gravity, 1.006; urea, 15.86 grammes; albumin, none; sugar, none; microscope, epithelium in great amount; granular epithelial casts.

In a week she felt so much better that she thought she had no further use for a doctor, and I have not heard from her since.

Of Class V—those showing neither albumin nor casts present, but revealing a markedly lowered elimination of urea and other solids—the two cases that I have to relate are of especial interest in that the first is that of a young woman who was markedly anemic and hysterical, and the second is that of an old lady who suffered from purpura hæmorrhagica:

The urine has been examined fifteen times in the first case and eight times in the second, without revealing albumin or casts at any of the examinations. The first case, besides steam baths and massage and distilled water to drink, has received iron, cod liver oil, strychnine, and strophanthus. I will not detail all the examinations, but will give you the results of the first and the last, stating also that the young woman was unable to walk without assistance and fainted when she attempted to get up, and is now up and out every day, walking about and gaining in weight and strength.

The first urine analysis was as follows: February 18, 1893. Amount, 370 c. c.; color, yellow; reaction, hyperacid; specific gravity, 1.024; urea, 11.5 grammes; albumin, none; sugar, none; microscope, negative.

The last analysis is as follows: May 22, 1893. Amount, 1,800 c. c.; color, reddish-yellow; reaction, acid; specific gravity, 1.023; urea, 45 grammes; albumin, none; sugar, none; microscope, a few epithelia; amorphous urates.

I was called to the second case because of a purpuric eruption which had appeared on the leg and foot. The history was one of a lady, about sixty years of age, who had always enjoyed pretty good health, save that she had had for a number of years a monthly hæmorrhage from the rectum and occasional attacks of diarrhoea accompanied by mucous discharge. She had lately noticed some dizziness and general muscular weakness.

Under treatment there has not been much change in the character of the urine analysis, the amount of urine varying from 960 c. c. to 2,160 c. c., and the urea from 2 to 4 grammes. But, by calling the skin into activity so that the urea may be carried off in that way, all the unpleasant symptoms have disappeared and remain in abeyance, the patient taking two hot tub baths weekly. She now walks about and enjoys life without fear of faintness, dizziness, or diarrhoea.

Evidently this is a case of contracted kidney, the degeneration of which is beyond recovery, and consequently it is all the more important to keep up the hot baths and prevent reaccumulation in the system of katabolic materials that should be excreted.

The conclusions to be drawn from these cases as regards treatment are:

1. We should not try to stimulate into activity an organ that is inflamed or degenerated, by the use of drugs that excite functional activity of such organ; in the case of the kidney we should rarely, if ever, have recourse to stimulating diuretics, or to diuretics which, like digitalis, act by increasing the arterial pressure, until we have relieved the venous congestion by diaphoresis or catharsis, or both.

2. Attention to diet is of the utmost importance in these cases.

3. In order that the materials to be excreted by the kidney may come to that organ in the most unirritating form, the metabolic processes should be carried to completion; this is to be accomplished by regular systematic exercise, which is to be obtained by massage when active exercise is not advisable, by inhalations of pure oxygen gas when it is evident that sufficient oxygen is not obtained from the air, and by the dilution of the katabolic materials by drinking large amounts of distilled water or one of the mildly alkaline waters, such as Bethesda, Poland, or Buffalo Lithia water.

4. The anæmia that accompanies these cases should be met by the use of oxygen and iron.

5. As the symptoms indicative of this condition are the result of toxæmia which depends upon the non-elimination from the body of certain katabolic materials that should normally be carried off through the kidneys, and as these organs are in such condition that they can not do their work, all other avenues of elimination should be opened up for the escape of these poisons. This is to be brought about by exciting the activity of the skin by means of hot-air or steam baths accompanied and followed by vigorous massage; keeping the bowels open by means of salines and by washing away the contents of the colon, thus keeping the mucous membrane in a proper condition for excretion, with copious enemata of slightly alkaline water, occasionally followed by a high enema of 500 or 600 c.c. of pure olive oil, as suggested by Fleiner (*Berliner klin. Wochenschr.*, 1893, Nos. 3 and 4).

CASES IN INTESTINAL SURGERY.

By APMORGAN VANCE, M. D.,
LOUISVILLE, KY.

CASE I.—*Strangulated Femoral Hernia; Resection of the Gut at the End of Eleven Days; End-to-End Anastomosis; Wölfler's Method Modified; Recovery.*—On January 30, 1893, I was called by her physician to see K. G., aged thirty-three, domestic, who gave the following history:

Eleven days previously she was taken sick suddenly with vomiting followed by purging. Purging ceased early on the first day; the vomiting continued until seen by the writer.

It was evident that the extreme modesty of the patient had prevented the physician attending from discovering the cause of the trouble, which upon closer investigation proved to be a strangulated femoral hernia of the left side.

The patient gave evidence of extreme exhaustion, the pulse being 150; the temperature, according to the physician, subnormal. No history of the hernia antedating the present illness could be obtained, and the patient had never been seriously sick before, having suffered occasionally from "bilious attacks" of short duration.

Nitroglycerin, one one-hundredth of a grain, was administered hypodermically at once, and the patient removed in a rolling chair to the John N. Norton Memorial Infirmary, only a short distance from her residence; and after slight preparation,

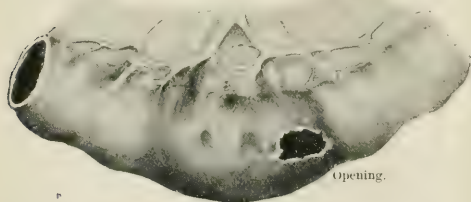


FIG. 1.—Showing sphacelous portion.

at 11.30 P. M., the operation for the relief of her condition was begun, Dr. J. W. Guest administering ether, Dr. H. E. Tuley and Dr. C. G. Lucas assisting.

Upon exposure and shaving of the pudendum, the tumor was

found to be of about the size of a hen's egg. The sac was exposed and opened and about half an ounce of very dark-colored fluid evacuated, and the blackened intestine lifted out of the sac. The sac was much thicker than is ordinarily found in a recent hernia, so it is probable that the hernia had existed without the patient's knowledge.

The very tight constriction was relieved by the hernia knife, and, after thorough irrigation with sterilized filtered water, the intestine was carefully drawn out, when one large perforation discharging fecal matter was drawn into view, the intestine being sphacelous in the line of constriction, which included a large portion of the convexity, the mesenteric border not being involved.

This line of slough was fully four inches in length. Resection was immediately determined upon, and an end-to-end anastomosis decided to be best suited to the condition. The assistants each making digital compression (Fig. 2) well on either side of the strangulated portion, nine inches were quickly removed with scissors, the incisions being extended between the vessels down into the mesentery, a silk ligature being ap-

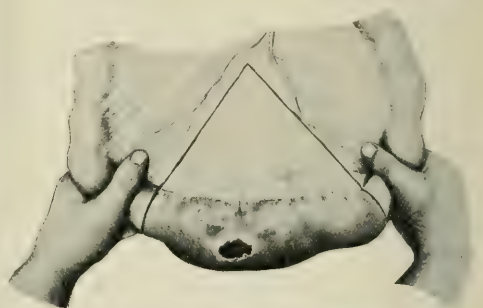


FIG. 2.—Showing excised portion. (After Wyeth.)

plied and the whole removed. These incisions approached each other so nearly that the part controlled by the ligature was not more than an inch in width.

There was no hæmorrhage and the suturing was rapidly done as follows:

By a continued fine catgut suture the mesenteric borders were closely approximated; with the same size catgut, which was No. 0, an interrupted suture was passed from the inside through the entire thickness of the intestinal wall, coming out at a corresponding point of the opposing gut to be approximated (Fig. 3).

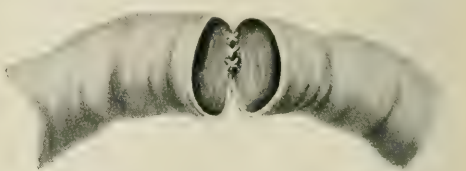


FIG. 3.—Modification of Wölfler's method. Showing stitches inside.

The part of the intestine above the constriction being greatly dilated and that below being collapsed, made the approximation more difficult, but the result obtained was good.

The first stitch was taken through the mesenteric junctions. This method of suturing was continued on either side of this point just as far as could be accomplished from the inside (Figs. 4 and 5); the remaining third of the circumference was

carefully closed by interrupted Lembert sutures. To make the closure doubly sure, a continued Lembert suture was commenced on one side at the apex of the mesenteric angle, and continued from this point around the gut to a corresponding



FIG. 4.—*b, b*, mesenteric border of gut, sutures on inner side; *a, a, a*, continuous Lembert suture. (After Wyeth.)

point on the other side. By this means there was no fresh surface left uncovered by peritonæum.

During the whole procedure the parts were frequently douché, and every care taken to prevent infection of the cavity.

With some little difficulty the sutured part was returned to the abdomen, the sac being removed high up, and deep approxi-

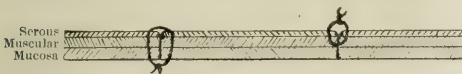


FIG. 5.—After Wyeth.

mation sutures applied to the canal. The wound was closed with silk worm gut, with a gauze drain in the lower angle.

The patient's condition at this time was better than when first seen, the pulse being 135 when the operation was commenced, falling to 120 before its completion. The operation was begun two hours after the patient was first seen, and there was certainly a very decided effect from the nitroglycerin, the operation occupying fifty-three minutes.

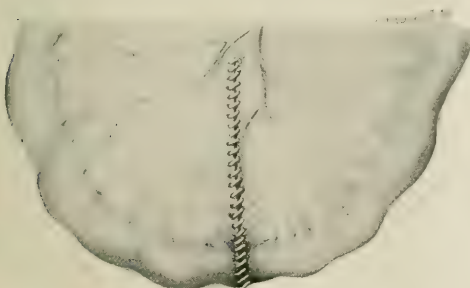


FIG. 6.—Showing completed operation. (After Wyeth.)

The fact that the patient had continued so long without nourishment rendered her chances of recovery much less, as an element of exhaustion had to be considered and combated.

The patient was got to bed at 12.30 A. M., and from this time till 6 A. M. she vomited six times a greenish, watery fluid. Pulse ranged between 92 and 140. Morphine, a quarter of a grain with atropine, was given at 1 A. M., and morphine alone at 6 A. M. She slept some after two o'clock.

During the day she was restless and hypodermics of morphine were given at noon and at 5 P. M.

The patient received and retained half an ounce of wine and Apollinaris water given every hour during the forenoon, and wine and beef peptonoids in the afternoon.

A rectal tube was introduced at 8 and 11 P. M. and considerable gas passed.

The pulse gradually increased in frequency from 108 at 1 P. M. to 132 at 5 P. M.

Digitaine was given hypodermically at 9 P. M. and 3 A. M.

The temperature in the evening was 101.6° per rectum.

The patient slept well all the night of the 31st.

February 1st.—During the day the pulse was not above 100; the patient was comfortable except cramping pains in the abdomen. The dressing was changed and hypodermics of morphine were given at 3.30 P. M. Wine and beef peptonoids given every two hours. At seven o'clock on the morning of the third day she was given an enema of water, one pint, which was returned slightly colored. At 11 A. M. an enema of Epsom salts, glycerin, and water was given, a medium-sized, partly-formed movement resulting. She passed considerable gas and complained of gripping pains in the abdomen. She vomited once a large quantity of light green fluid.

She had four stools during the afternoon and night. Pulse through the day not above 112. Maximum temperature, 99.8°.

She slept fairly well during the night.

3d.—She was restless and complained of pain in the bowels, for which a hypodermic of morphine was given at 5 A. M.

During the day she vomited eight times; only four ounces of peptonized milk were retained. The vomiting was not controlled by sinapisms over the epigastrium or by listerine by the mouth.

The pulse ranged between 112 and 124 during the day. Temperature, 101.4°. Abdomen flat; slight tumefaction over the transverse colon.

During the following day she vomited eleven times, apparently without effort, very little nausea being present, the vomited matter consisting of greenish fluid and at times curdled milk.

She was given aromatic spirits of ammonia, calomel, and morphine. Pulse not over 96. Temperature, 99°.

During the night she vomited nine times, sleeping but little. Maximum pulse, 100; one small, thin stool containing particles of undigested milk.

5th.—During the day she vomited but twice, a good effect seeming to be derived from the administration of oxalate of cerium.

Hypodermic injections of whisky were given every three hours, beginning at 7.30 A. M., continued until 11 A. M. on the morning of the seventh day.

6th.—She was unable to take more than one drachm of milk at a time, but vomited only three times.

The wound was dressed at 8.30 A. M. and the stitches removed. A slight discharge of serum at the lower angle of the wound was noted, which continued through the day.

Wine of cocaine was given in teaspoonful doses with half an ounce of beef peptonoids every two hours. The maximum pulse was 118, the rise being caused by the entrance of a stranger into the room.

The patient's general condition at this time was excellent. She continued to improve until the tenth day, when she had four large, thin stools, which were controlled by paregoric and bismuth subnitrate.

The vomiting had ceased, pulse and temperature were normal, the general condition was good. A slight serous discharge continued from the wound.

The careful nursing of this case under the efficient supervision of Miss Gillett, assistant superintendent of the infirmary, is in a large measure to be credited with its successful termination.

In every case of emergency of this kind a rapid decision is necessary as to what is best, and this depends entirely upon the condition of the patient. To my mind only one of two procedures is legitimate: If the patient is *in extremis* and plainly unable to withstand a prolonged operation, the production of an artificial anus is the operation; but if, in the estimation of the operator, the condition justifies it, even to straining a point, the patient should have the benefit of the doubt, and a complete operation be performed as in this case.

Either terminal anastomosis by absorbable rings or plates is decidedly less feasible or surgical, as a celiotomy is made necessary from inability to return the repaired intestine through the small hernial opening.

The risk in celiotomy is in septicizing the cavity, which is rendered *nil* by working entirely through a slightly enlarged hernial opening.

CASE II.—*Resection of the Small Intestine for Gangrenous Hernia; Wölfler's Method Modified; Death.*—On July 18, 1892, I was called to see Miss X., aged twenty-five, who gave the following history: She had been the subject of right femoral hernia for three years, having been treated during this time by an irregular "specialist," who used a so-called "electric truss," which she wore for two years.

Some weeks before she was seen by the writer, as a cure of the rupture had been accomplished, according to the "specialist's" statement, the truss was discontinued. Eight days before the writer was called the hernia had again descended and become incarcerated, and, after much manipulation by the same "specialist" under chloroform, it was supposed to have been again reduced.

During this period vomiting was constant, and under the family physician rectal alimentation was used, the patient remaining in bed.

The tumor returned at the end of this period, upon the patient leaving the recumbent position, and, when examined, the surrounding parts were found to be very boggy, and evidences of active inflammation were present. The patient was evidently in a condition of marked sepsis.

Immediate operation was proposed and consented to. When the sac was reached it was found gangrenous and ruptured, large quantities of fluid fecal matter having escaped into the tissues about.

A small knuckle of the small intestine was found completely gangrenous and ruptured. Primary resection was done just as described in the foregoing case, four inches only of the intestine being removed, every care being taken to insure an aseptic condition before returning the gut to the cavity, the sac being tied off very high up, and the external wound packed with iodoform gauze.

The patient bore the operation, which lasted fifty minutes, without any evidence that her condition had been made worse; she continued to do well for forty-eight hours, when active delirium and other evidences of septic poisoning were marked, and death followed in sixty-two hours after the operation. There were no evidences whatever of peritonitis, three large evacuations through the bowel having taken place, the abdomen remaining perfectly flat.

So far as could be determined, the septicæmia was due to the condition of the external wound. No post-mortem was allowed, and we have only the symptoms to judge from.

CASE III.—*Abdominal Gunshot Wound; One Mesenteric and Four Intestinal Perforations; Celiotomy; Recovery.*—On February 7, 1893, I was called to see H. F., aged twenty-nine, who a half hour before had received a pistol-shot wound of the abdomen, the ball entering in a line with and five inches to the left of the umbilicus. The man was found where he had fallen after running two squares, with marked evidences of shock, face pallid, pulse barely perceptible at the wrist; temperature not taken.

A hypodermic injection of nitroglycerin, one one-hundredth of a grain, was given, and the patient removed carefully and rapidly fully a mile to the John N. Norton Memorial Infirmary, where, with the efficient assistance of Dr. J. W. Guest, Dr. H. E. Tuley, and Dr. C. G. Lucas, and after as careful preparation as the circumstances of the case would allow, the cavity was opened in the median line between the umbilicus and pubes, no attention being given to the bullet wound. The ileum was brought out and carefully read, no more than six inches being exposed at a time during this process.

Four perforations—two of entrance and two of exit—were closed with fine catgut, as was also a large wound of the mesenteric border, which exposed the mucosa. Careful search was made for any other injuries, but none were discovered. The cavity was then thoroughly irrigated and cleansed of the extravasated blood and fecal matter, the wound being closed with silk worm gut, a glass drainage-tube being carried well into the pelvis at the lower angle of the wound. The method of suturing was by the continued Lambert suture, which was rendered doubly secure by a resuturing with the same piece of catgut, the two ends being then tied together.

Either was the anesthetic used, and the patient vomited large quantities of undigested food, this necessarily prolonging the operation, which lasted fifty minutes.

The patient was put to bed comparatively in good condition, and his recovery has been uninterrupted, the only complication which has arisen being the suppuration of the track of the bullet in the abdominal wall, and at the end of the second week a slight rise of temperature due to an infection at the site of the drainage-tube.

The drainage tube was removed at the end of forty-eight hours, it having been demonstrated, from the amount of bloody serum aspirated, that its use was a wise precaution.

At the end of three weeks the patient is up and walking about the ward in excellent condition, appetite and digestion normal, giving evidence of having lost very little of his strength. The bowels seem to be undisturbed in their function, castor oil having been administered at the end of fourteen days, evacuations each alternate day being maintained prior to this by enemata.

The favorable outcome in this case is due to the fact that the bullet ranged transversely and evidently entered the abdominal wall on the opposite side at a point nearly corresponding to the point of entrance. This was not demonstrated, however, by its location. The direction of the bullet was changed by its having struck a trousers button in its passage through the clothing, thus being deflected from its primary course, which was directly backward.

This is the fourth case of abdominal gunshot wound operated on by the writer, the first patient having eight wounds of the ileum, living four days, the post mortem showing that death occurred from a wound of the ureter.

The second patient had eight wounds of the ileum and one of the fundus of the bladder, living three days, dying of sepsis due to infiltration of urine from the wound of exit in the bladder, which was undiscovered and must have been near the neck, as an abscess appeared in Scarpa's space before death.

The third had four wounds of the ileum, death at the end of thirty hours, the post-mortem proving death to have occurred from hæmorrhage into the bowel.

In all of these cases the wounds were from a pistol shot, the bullet being of .32 caliber.

The experience of the writer proves that success is due to the early period in which the patient is seen after the receipt of the injury, and from the fact that the bullet fails to injure the extraperitoneal and other abdominal viscera. After the patient has stood the necessary work to repair the intestines, additional exploration adds so greatly to the shock and to the time of the operation that a fatal outcome is almost certain.

The possibility of forestalling sepsis from the absorption of faecal matter is just in proportion to the time elapsing between the injury and the operation. This fact alone should admonish the surgeon to be always ready for such emergencies, that no time be lost. Another momentous factor in this connection is the necessity of the careful handling of the patient, that no unnecessary movement on his part shall increase faecal extravasation.

NOTE.—I am indebted to Dr. Henry E. Tuley for the original drawings from which Dr. Macdonald has made those used in the illustrations.
218 WEST CHESTNUT STREET.

EYE TUBERCULOSIS

AND ANTITUBERCULAR INOCULATION IN THE RABBIT.*

By E. L. TRUDEAU, M. D.,

SARANAC LAKE, N. Y.

GENTLEMEN: At the last meeting of this association I presented a paper on the Treatment of Experimental Tuberculosis, illustrating the influence of such treatment on eye tuberculosis in the rabbit by photographs and living animals. The two last conclusions reached were as follows:

"Experimental tuberculosis in the rabbit's eye can be cured by such injections. The permanency of this cure has not yet been established."

A more extended experience has shown me that the cure of inoculation tuberculosis in the rabbit's eye by this method is by no means always a constant result or one which can be brought about invariably at will. I have failed often where I had every reason to expect success, and I have succeeded where I had no special reason to hope for a favorable result. This inconstancy in results may be explained by the great difficulty of controlling the relation existing between all the factors involved in the problem, such as the virulence of the bacilli injected, their number, the virulence of the microbes from which the tuberculin was made, and the degree of individual

resistance possessed by each animal. Cures do occur, however, and appear to have a certain degree of permanence, as the two animals I now show you illustrate. These rabbits were inoculated in the eye with cultures of tubercle bacilli of human origin more than a year ago. The eye of the untreated control is cheesy and atrophied. That of the treated animal shows but the fibrous evidence of the inflammatory changes of which it has been the seat; the sight is unimpaired, the cornea clear, the inoculation wound a mere corneal scar; the iris, dilated and showing on its surface small grayish fibrous specks at the site of the once evident miliary tubercles, is still adherent to the lens by fibrous bands, while the vascularity of the eye is normal. The present appearance has remained unchanged for six months.

Hitherto the tubercle bacillus has always been considered as a pathogenic microbe having but one source and possessed of a very constant degree of virulence. More recent researches by Muffici, Koch, Metchnikoff, Courmont and Dor, and Loeb have taught us that the virulence of this germ varies greatly and that there are two distinct races of tubercle bacilli—the mammalian and the avian. Loeb's experiments made in Koch's laboratory demonstrated that bacilli cultivated uninterruptedly for nine years and having descended from the original cultures used by Koch in his first experiments, and which then killed both guinea-pigs and rabbits within six to ten weeks, were no longer pathogenic for rabbits and but slightly so for guinea-pigs. Principally through the labors of the above-mentioned investigators it has also become known that the avian tubercle bacillus is apparently a race by itself and that it presents certain quite constant cultural and pathogenic peculiarities not observed in the microbe originally discovered, studied, and described by Koch. Whether these variations have merely been acquired by Koch's bacillus as the result of a long parasitic life history in the organism of birds, or whether they indicate a permanent difference of race, is still a disputed point; as yet, however, it has been found impossible by laboratory and inoculation experiments to show that either variety of these germs can be transformed into the other. In 1890 I presented and described before this association cultures of the tubercle bacillus which were not pathogenic for guinea-pigs and which showed marked cultural variations from the standard. The original source of these bacillary growths was somewhat doubtful, as they had been brought from Europe, and I supposed them to have become attenuated while under cultivation. In the light of recently acquired facts, however, it is quite evident that these attenuated cultures were bird tuberculosis, and the description then given will answer very well for the avian microbe as we now know it. In growing this variety of the tubercle bacillus from the lesions of tubercular birds, not only have I been able to confirm many of the observations made by Muffici, Koch, and the French experimenters, but I have been struck as well with two marked peculiarities which I have not seen described: 1. The ease with which the chicken bacillus adapts itself to a saprophytic existence, which is in strong contrast to the well-known difficulty of obtaining first growths of

* Remarks made before the Association of American Physicians at its eighth annual meeting.

Koch's bacillus in artificial media, for the avian microbe grows readily direct from the lesions of birds in most of the media in use, whether solid or fluid. 2. The strong anaerobic attribute possessed by the bird bacillus, which enables it to thrive readily within and beneath fluid media as well as on the surface, while the human microbe grows only when floated on the surface of liquids and in constant contact with oxygen, and develops almost imperceptibly or not at all when immersed. The *human bacillus* has been found by all observers to be about harmless for birds; though in rare instances intraperitoneal inoculations may cause an eruption of tubercle in these animals, intraperitoneal reinoculations of this tubercle prove negative and the animals remain healthy. The *avian bacillus*, when fresh from the lesions of birds or when cultivated but a short time in artificial media, is about harmless for dogs and guinea-pigs. Rabbits are, however, more susceptible to it, and die readily from intravenous, intraperitoneal, and intrathoracic injections of not excessive amounts of these cultures. On autopsy, they may either show extensive generalized tubercular lesions or they may present no evidence of tubercle in any organ, but an extreme emaciation only, as if they had died of chronic septic intoxication. When a small amount—0.05 to 0.25—of liquid culture grown a month direct from the chicken is injected under the skin, the animal generally recovers; an abscess is formed at the site of the inoculation which tends slowly to soften and become diffuse, and, finally, if the animal survives, disappears almost entirely. This brings us to the subject of preventive inoculation.

Antitubercular inoculation was first tried by Falk in 1883, and all attempts in this direction have resulted until recently in but an unbroken record of failures. In 1890 I added my name to the list of those who found it impossible to produce immunity in animals by this method. In 1890 Martin and Grancher and Courmont and Dor claimed to have produced in rabbits a certain degree of immunity by previous inoculation after Pasteur's hydrophobia method of avian tubercle bacilli of graded and increasing virulence. These vaccinations were, however, frequently fatal to the animals, and the immunity obtained was but slight. Richet and Héricourt have since claimed to produce complete immunity in dogs by intravenous inoculations of bird tubercle bacilli. These experimenters found that though harmless to the dog when first derived from the chicken, bird bacilli, by long cultivation in liquid media, become pathogenic for this animal, and by thus grading the virulence of the injections complete immunity against any form of tubercular infection was produced in the dog. As yet these striking results have not been confirmed. The animals which I now present to you illustrate an attempt I have made along the same line to produce immunity in the rabbit. Cultures grown directly from the chicken's lesions in bouillon for first five weeks, then six months, were twice injected subcutaneously at intervals of twenty-one days in doses of 0.025 and 0.05, and a third injection of a still older culture was occasionally given. About one in four of the rabbits died within three months, profoundly emaciated, but without any visible tubercular

lesions. The remaining animals recovered and were apparently in good health when, together with an equal number of controls, they were inoculated in the anterior chamber of the eye with cultures of Koch's bacillus derived from the tuberculous lesions of the rabbit and cultivated about three months on glycerin-agar. The results of these inoculations present many points of interest. In the controls, as is usually the case, if the operation has been done carefully and aseptically and with a moderate amount of dilute virus, two days after the introduction of the virulent material in the eye little or no irritation is observed, and little is to be noticed for two weeks, when a steadily increasing vascularity manifests itself, small tubercles appear on the iris which gradually coalesce and become cheesy, intense iritis and general inflammation of the structures of the eye develop, the inoculation wound becomes cheesy, and in six to eight weeks the eye is more or less completely destroyed and the inflammation begins to subside. The disease, however, remains generally localized in the eye for many months, and even permanently. In the vaccinated animals, on the contrary, the introduction of the virulent bacilli at once gives rise to a marked degree of irritation. On the second day the vessels of the conjunctiva are tortuous and enlarged, whitish specks of fibrinous-looking exudation appear in the iris and in the anterior chamber, and more or less intense iritis supervenes, but at the end of the second to the third week, when the eyes of the controls begin to show progressive and steadily increasing evidence of inflammatory reaction, the irritation in those of the vaccinated animals begins slowly to subside and the eyes to mend. The vascularity is less, the whitish spots of fibrinous material appear smaller, the structures of the eye become clearer, the inoculation wound is but a bluish, fibrous scar, until in from six to twelve weeks in successful cases all irritation has disappeared and the eyes present, as in the animals I now show you, but the fibrous evidence of the traumatism and the inflammatory processes which have been set up by the inoculation. In all the controls, as you see, the inoculation wound is cheesy and the cornea and iris are more or less destroyed by tubercle and cheesy areas.

Some of the protected animals slowly relapse, and the one I now show you has small tubercles growing on the iris; but even in such eyes the entire absence of caseation is noticeable and the disease progresses almost imperceptibly. I have repeated this experiment on three sets of rabbits with about the same results each time. The vaccinations as practiced are of themselves, in some instances, fatal, but the fact remains that where recovery takes place a marked degree of immunity has been acquired. I do not lay any claim, therefore, to have produced a complete or permanent immunity by a safe method, but it seems to me that these eyes constitute a scientific demonstration of the fact that in rabbits preventive inoculation of bird tubercle bacilli can retard and even abort an otherwise progressive localized tubercular process so completely as to prevent destruction of the tissues threatened, and that the future study of antitubercular inoculation may not be as entirely hopeless as it has until recently appeared.

DIPHTHERIA.*

By G. E. CRAWFORD, M. D.,

VISITING PHYSICIAN TO ST. LUKE'S HOSPITAL, CEDAR RAPIDS, IOWA.

My subject is a commonplace one, but, owing to its universal and increasing prevalence and great mortality, there is probably no subject in the whole realm of medicine of more vital interest to the general practitioner, as well as to his patrons, than that of diphtheria.

Diphtheria has justly become the dread and terror of the home. It is no respecter of caste, but visits alike the palace and the hovel, and no domestic circle is safe from its fatal ravages.

I will not presume to trespass upon your time with any description of this disease, so familiar to you all; nor do I expect to bring to you anything new or novel upon this familiar topic. But, from the very beginning of my professional career having had to pass through the trying ordeal of malignant epidemics of this most malignant disease incidental to our climate, and thus being compelled to treat a larger number of cases perhaps than falls to the lot of most practitioners, I purpose rather to give you the *résumé* of twenty years' conscientious study and observation, more especially upon the therapeutic indications.

That diphtheria is a contagious and infectious disease no one any longer doubts, though the profession was a little slow in acting on its belief in this matter. The latest investigations seem to verify the opinion that the Klebs-Loeffler bacillus is essentially the specific cause of diphtheria; that the ptomaines or toxalbumins resulting from the development of these organisms are the chemical poison which produces the profound toxæmia of the disease and the paralytic tendencies and manifestations. Brieger and Fränkel have isolated this toxalbumin, and with it demonstrated upon animals all the paralytic phenomena of diphtheria, as well as the albuminuria and nephritis. Associated with the Klebs-Loeffler bacillus in diphtheria are several other pathogenic bacteria, and just what more or less important rôle they play in the cause and complications of the disease remains for pathologists yet to settle.

Staphylococci and the *Streptococcus pyogenes* and other saprophytes, if not present primarily, rapidly develop in the necrotic nidus, and, entering the system through the denuded surface and exposed lymphatics, produce the secondary glandular and serous inflammations, and notably the so frequent and fatal broncho-pneumonia. Accepting this pathology, the local origin of the disease is no longer debatable.

We may say, then, for practical purposes, that diphtheria is caused by the lodgment of the Klebs-Loeffler bacillus or its spores upon a mucous surface, usually the fauces or the nose, most frequently the tonsils; that, there developing and propagating itself in the epithelial layer, it sets up a local exudative inflammation, which is the local expression of the disease, together with greater or less systemic manifestations—at first inflammatory—and to which is rapidly added the toxæmia of the virulent ptomaines or toxalbumins as they are absorbed into the system.

These points being settled, that the disease is contagious, infectious, and local in its inception, the subject of prophylaxis would naturally present itself to us as of primary importance. While it is true that the disease is primarily local, yet, unfortunately, we ordinarily have no warning of its presence until its processes are well under way. But it is reasonable that a thorough and frequent cleansing of the throat with a harmless antiseptic gargle or spray, after exposure or during the prevalence of the disease, is the best preventive measure we have.

The popular practice, first introduced by the profession and now so much in vogue with the people, of giving quinine and whisky as a preventive, is to be condemned, as all the good that can come from it is as a local antiseptic, and for that purpose is much inferior to less unpleasant and objectionable mixtures. Parents should be instructed to teach their children to gargle at a very early age. Last fall, during the prevalence of diphtheria, I taught my baby girl, only a little more than two years old, to gargle, as well as her nine-year-old brother, and this was kept up three times a day during the entire epidemic. The gargle I usually prescribe for this purpose is a saturated solution of three ounces of boric acid with one ounce of eucalyptol compound. This makes a pleasant, non-irritating mixture, well suited to allay the pharyngeal irritation so noticeably prevalent during an epidemic of diphtheria. Its germicidal potency may be easily increased by adding a small amount of bichloride of mercury, which I always do if there has been a known exposure.

Immediate isolation of a case, or a suspected case, is of the utmost importance to prevent the infection of other members of the family. It is immensely better to confine a child to an upper room for two or three days with a suspicious throat, though it prove in the end to be only a simple tonsillitis, than allow a case of malignant diphtheria to slowly develop in the midst of the household, as it not infrequently does. Parents are so gratified if the case is not diphtheria that they are not disposed to censure the doctor for his prompt precautionary measures.

When practicable, unaffected children should be sent away to friends having no children. With these prophylactic measures promptly and thoroughly carried out, there is a strong probability of limiting the disease to the one case in the family. And while speaking of preventive measures I would like to urge the necessity of great care upon the part of the physician himself, especially if he has small children of his own.

Grancher, of Paris, who has had great experience in diphtheria, expresses the opinion that "in nearly all instances diphtheria is communicated by infected articles of clothing and furniture."

The physician can not treat bad cases—swabbing and spraying the throat and nose—without danger of infecting his clothing by the coughing and strangling of the patient. The simplest and best means of protection I have found is a complete rubber suit, consisting of leggings, a long rubber coat, and a skull cap. These are rolled up in a rubber cover and placed in the back of the buggy. With but little delay or trouble, this suit takes the place of the over-

* Read before the Iowa State Medical Society, May 17, 1898.

coat in the vestibule; after visiting the patient it is folded up and placed in its receptacle, and the hands, face, and hair are washed in a bichloride solution instantly prepared by dropping a few tablets in a bowl of warm water. In very malignant cases I take the additional precaution to change all outside clothing, or the disinfection is made more thorough at the office. The rubber suit is easily disinfected by immersing in a bucket of bichloride solution.

It is a noticeable feature that a much larger number of girls have diphtheria than boys. This is probably owing to the fact that girls spend more time indoors.

When many plans of treatment and a multitude of remedies are employed for a given disease, it is evident that none of them give very satisfactory results. There is scarcely a potent remedy in the materia medica which has not been used in diphtheria. In the midst of this mass of conflicting and unsatisfactory testimony, what is the young practitioner going to do for a case of diphtheria? To give my advice specifically on this point is the chief object of this paper. In this I claim but little or nothing original, but merely the appropriation and readjustment of valuable ideas gleaned from many and remote sources, and which have seemed best to stand the test of prolonged experience.

Fever, though not usually a prominent symptom in diphtheria, is generally quite high in the early part of the disease. This is best relieved by moderate doses of phenacetine, which not only reduces the temperature, but quiets the nervous, restless condition nearly always present.

The early local treatment of the throat is of the most vital importance. A day lost at the beginning is often a life lost. The people should be made acquainted with this fact. Twenty years ago, perhaps, Dr. J. Lewis Smith wrote this prescription, which, as a first application to a forming membrane, is a most excellent remedy:

R Acidi carbolici..... gtt. x;
Liq. ferri subsulphatis..... ʒ iij;
Glycerina..... ʒ j. M.

This should be carefully applied to the pseudo-membrane only, with a camel's hair pencil, or, better, a little swab extemporized by twisting a little absorbent cotton on the end of a small stick, like a tapering penholder. This is very disagreeable to the patient unless skillfully applied, and should be used by the physician himself, and not more than twice a day.

When used early, while the membrane is thin, it shrivels it up and removes it, contracts the capillaries, and leaves the denuded surface in a favorable condition. The good to be accomplished by this application is in the early stage, and I think it often aborts or cuts short an attack by exterminating the whole colony at once. If the membrane is thick or there is a high grade of inflammation and a rapidly forming membrane, it is of little or no service and should be discontinued.

A most valuable accession to the list of local remedies is peroxide of hydrogen. I use it from the beginning and as long as there is a vestige of disease left in the throat or nose. I generally use the ordinary fifteen-volume preparation, full strength, sprayed directly on to the membrane

every hour through the day and every two hours through the night with a Phoenix atomizer. This is a little straight instrument which can be used with one hand, while the other holds the tongue down with a spoon if necessary, as it usually is.

Peroxide of hydrogen is a powerful disinfectant and deodorizer, cleans out the throat, and does away almost entirely with the terrible stench which is so characteristic of the disease, and the membrane gradually melts away under its influence. In very young children or when the throat seems irritable the peroxide had better be diluted one half, and always diluted one half or two thirds for the nose; but the full strength sprayed directly against the membrane in ordinary cases is devoid of danger or any objectionable action, and is, in my opinion, the most thorough and satisfactory local treatment yet devised. If from any reason the spray can not be used and a gargle must be substituted, the mixture previously described—of boric acid and eucalyptol compound, to which is added one to three thousand or two thousand bichloride—best meets the indications.

The old gargle of tincture of iron and chlorate of potassium, formerly so much used, is inferior as an antiseptic, exceedingly unpleasant to use, and often painful and irritating to the inflamed throat.

Also from the very beginning I give the following mixture to a child, say, six years old:

R Bichloride of mercury..... gr. j;
Aqua purae..... ʒ iij. Solve.
Eucalyptol comp..... ʒ j.

M. Sig.: A teaspoonful every hour through the day and every two hours at night.

This, with plenty of milk, will be the only medicine given for the first twenty-four hours, or perhaps for the second or third day, as the case may be.

There has been a good deal of complaint of the bichloride causing vomiting. I have heard so high an authority as Dr. Seibert, of the New York Polyclinic, say that the only effect he ever saw from the bichloride was to make the patient vomit.

I used to experience a good deal of trouble while using the bichloride in a simple watery solution or with the fluid pepsin preparations. But with the above-mentioned mixture I seldom have any trouble. It will be retained when anything will. I attribute it to the sedative action of the eucalyptol compound on the stomach.

This preparation is manufactured by Truax, Greene, & Co., of Chicago, and is similar to, though I think an improvement on, the preparation called listerine. It is a five-per-cent. solution of boro glyceride with eucalyptol, thymol, resorcin, menthol, and benzoic acid. The minty flavor completely covers the very disagreeable metallic taste of the bichloride, and leaves a grateful cooling sensation in the throat.

But not merely as a corrigent do I regard the eucalyptol compound in this prescription, but, being a combination of the most thorough non-poisonous antiseptics, is an important adjuvant. Usually on the third day, or on the second day if there are pallor and weakness, I add the following prescription:

R̄ Tinct. ferri chloridi. ʒ iij;
 Glycerinæ ʒ j;
 Syr. Tolu. q. s. ad ʒ iv. M.

Of this, a teaspoonful with a little water, to take the place of the bichloride mixture, every third hour.

You see I have omitted the chlorate of potassium from this prescription. I think its only value is in the small amount of chlorine liberated, and as we now have such an abundance of better disinfectants, we can well dispense with its irritating effect both on the throat and the kidneys.

The tincture of the chloride of iron has stood the test of years as the best agent we have to counteract the rapid destructive processes upon the blood.

As the exudative process diminishes I give less of the bichloride mixture, and when it ceases leave it off altogether, continuing the iron and liquid nourishment, with perhaps a little quinine, and, if there is much weakness, brandy and digitalis. Stimulants are useful on general principles, and when indicated should be given promptly and freely; but I think their value is overestimated.

The weakness of diphtheria is a pure *toxæmia*, and I have never seen any evidence that alcohol is an antidote.

Years ago, following a prevailing fashion, I did what I will never do again—treat a case of diphtheria by beginning to death with nothing but heroic doses of whisky.

As an adjunct to both local and general treatment as well as prophylactic to the spread of contagion, the following mixture, as prescribed by Dr. J. Lewis Smith, our old and reliable authority on diseases of children, is of great importance:

R̄ Acidi carbolici, }
 Ol. eucalypti, } āā ʒ j;
 Ol. terebinthinæ ʒ viij. M.

Of this a tablespoonful or two to a quart of water in a broad, flat-bottomed pan is kept simmering in the room. The steam, loaded with the somewhat pungent though not unpleasant fumes, fills the room, and, if not possessing all the remedial qualities some have alleged for it, the patient certainly breathes easier and the air is made less infectious to attendants and physician.

In diphtheritic croup I believe it is of very great value. The best and simplest way to use it, I have found, is to place at the bedside a little portable kerosene stove on which is placed a teakettle or some suitable vessel with a cover and a large hole cut in the side near the top. A cone or tube is easily improvised from a large sheet of stiff paper and the steam conducted directly to the face of the patient, the quantity and heat being easily regulated by the position. This may be continued for twenty or thirty minutes at a time and repeated at intervals of one or two hours, the vessel simmering in the room in the mean time. These inhalations, together with the free administration of the bichloride mixture, is the best treatment we have for diphtheritic croup.

It is the practice of some to give bichloride in the form of tablets and granules. I think this is to be condemned as liable, in so undiluted a form, to cause irritation of the stomach and bowels, and possibly necrosis of the intestinal glands.

In giving these specific directions I hope no one will understand me as laying down a stereotyped routine treatment to be followed in all cases, but as the general outline of a typical case, to be modified according to circumstances and indications. Neither do I pretend for one moment that these measures, however thoroughly carried out, will save all cases of diphtheria; but constant personal attention to the minute details is the chief element of success in the plan of treatment in this terrible disease.

A CASE OF NASAL HYDRORRHOEA.

By GEORGE F. KEIPER, A. M., M. D.,

LAFAYETTE, IND.,
 EYE AND EAR SURGEON TO ST. ELIZABETH HOSPITAL.

F. B., an architect, consulted me on May 7, 1892, on account of a constant and profuse discharge from his nose which, on account of his occupation, was most annoying. Nothing in his previous history could account for it.

The nares upon examination presented all the characteristics of hypertrophic rhinitis. Treatment was immediately instituted for the reduction of the hypertrophied tissue, but after six months' faithful treatment the discharge continued unabated. All of the remedies ever suggested for relief of similar cases failed here, cocaine included.

After considerable thought upon my patient's condition, I ordered the following:

R̄ Atropine sulph. gr. ij;
 Aquæ dest. ʒ j.

M. Sig.: Spray each nostril morning, noon, and night.

Within two days the discharge markedly lessened, and since then has been in normal quantity only.

The patient suffered some inconvenience at first on account of getting some of the solution into his eyes, but by due caution he has had no trouble since, though he still uses the atomizer.

These cases are rare, and for that reason I report. The treatment as laid down by our authorities is confessedly discouraging, and this case is reported because it has brought in my case atropine into a new relation.

The Death of Dr. Karl S. Walfridsson, a Swedish missionary physician in the lower Congo valley, occurred on May 6th, exactly two years from the time of his arrival in Africa. He was educated in medicine in England and had a qualification from each of the royal colleges. He was an occasional correspondent of the London journals, and in his letters treated frequently of the symptomatology of the "sleeping sickness," a complaint that is very prevalent along the lower reaches of the Congo, where Dr. Walfridsson's mission was situated. His death was caused by a malarial fever that had been severe since January last.

The Death of Medical Director David Harlan, of the Navy, took place at Churchville, Maryland, on July 12th. He was eighty-four years old. He was graduated from the University of Maryland in 1832 and entered the navy three years later. His retirement took place in 1871, after a very active and honorable service. One of his sons, Dr. Herbert Harlan, is a professor in the Baltimore University School of Medicine.

The Death of Dr. Jacob Moleschott, of Rome, took place in May last, in his seventy-first year. Although he was a Hollander by birth and for almost a lifetime a professor in Turin and Rome, he is generally spoken of as a German physiologist. His publications on food, milk, the blood, and muscular structure have been numerous. He was for a time an Italian senator.

SOME SUGGESTIONS IN THE TREATMENT OF PNEUMONIA.*

By A. S. MADDOX, M. D.,

PETROLEUM, W. VA.

A GREAT deal has been written concerning the treatment of pneumonia, but after a study of thirty-six cases in individuals whose ages range from two to eighty, some points have been observed which, although they are not new, may yet be worth mentioning again.

Unlike hospital cases, these were not treated and studied under the most favorable conditions, being distributed over a considerable area of country. I do not aim or expect to advance any new theories or something you all have not read about or used at some time or in some measure in your practice, nor do I wish to tire you with prolix details. But I do wish to reiterate with emphasis some essential if not cardinal points in the treatment of this disease, as well as to discourage and condemn some prevailing methods used by numerous physicians with whom I have come in contact either in consultation or conversation.

In twenty of the thirty-six cases referred to the disease in a general way was to be considered mild, as only one lobe was affected in either the right or left lung, yet in some of the cases the temperature ran as high as 105.5° F. and delirium was well marked. All of these cases were treated in almost a routine manner with slight modification, according to the severity of the symptoms.

Externally, counter-irritation was used with either a spice poultice or a mustard plaster over the side affected, and sponging the surface with cold or tepid water was resorted to in some of the cases of high temperature. In two, blisters of cantharidal collodion were used where resolution was delayed. Internal medication consisted chiefly in the use of carbonate of ammonium from onset to convalescence, and in most of the cases some quinine was given as a tonic throughout the entire course of the affection.

Latterly, as seemed necessary, alcoholic stimulants were administered. All these patients recovered. The remaining sixteen cases were of a more severe type, due to affection of more than one lobe in one lung, and in two cases crossed pneumonia existed. In all of these cases carbonate of ammonium was given throughout the whole course of the disease, and the severer symptoms were met by nitroglycerin and digitalis with very satisfactory results in all but two cases, which succumbed. One of the patients, who died in spite of all remedies, was a young man who had coexisting bronchitis following measles, and the other a man aged fifty-eight who had double pneumonia.

In these cases all remedies given seemed to make no impression. As before stated, I have used nitroglycerin considerably with happy results.

In those cases where a decided weakness of the first sound of the heart existed, and the pulse denoted a tendency to heart failure by being irregular or very quick and feeble, trinitrin was promptly administered in doses of from one one-hundredth to one fiftieth of a grain every fifteen min-

utes to one hour until the effect of the drug could be noted; then was followed by digitalis in doses of from ten to thirty minims every six to eight hours, at the same time continuing the former drug; *e. g.*, in one case—that of a man aged fifty-five, whose respirations were 55, pulse 125 per minute, and temperature 104.5° F.—nitroglycerin was given every fifteen minutes in one one-hundredth-grain doses, and in one hour respirations were reduced to 40, pulse 98, and temperature 103° F. This was followed by digitalis in thirty-minim doses, and the very dangerous condition due to enfeebled heart never returned. Subsequently, alcoholic stimulants were given in large quantities, and Wyeth's extract of malt was ordered by the dozen bottles. Although there was a very slow resolution, which extended over about two months, the patient recovered.

Having only given a glance at the cases, I will summarize the salient points I wish to emphasize.

In the first place, and as seems to me a very important factor in the treatment of these cases, no direct medicinal antipyretics were used, especially of the coal-tar series—a fact that should be particularly observed in the treatment of all diseases where there is likely to be great prostration and depression of the nervous system with a tendency to heart failure.

Some medical men whom I know, and who advocate the use of antipyrine, phenacetine, and acetanilide in pneumonia in the same conditions, have met with terrible disaster, and still continue to use the drugs in this disease.

I should like to urge upon members of this society (if there are any who use these remedies with the hope of reducing temperature) to discard them and substitute some good stimulant, such as we find in the carbonate of ammonium, throughout the course of the disease. Then sponge more and give fewer drugs. In lieu of these, push nourishment and stimulants even to a fault.

Many of the cases mentioned followed *la grippe* and were accompanied by great depression of the nervous system, and had it not been for sustaining measures, I have reason to believe many patients would have died. And now the lesson to be learned from a careful attempt to study these cases it seems to me can be summed up in a few words: That a rational conclusion is to maintain the patient regardless of reduction of temperature only as subsidiary means; to watch for any contingency which may arise and combat it as such; and lastly, but of paramount importance, is to not discourage the heart by tampering with any of the coal-tar derivatives.

The Ohio State Medical Society.—Officers were recently elected as follows: President, Dr. N. P. Dandridge, of Cincinnati; vice-presidents, Dr. F. C. Larimore, of Mount Vernon, Dr. William Caldwell, of Fremont, Dr. W. T. Corlett, of Cleveland, and Dr. L. S. McCurdy, of Denison; secretary, Dr. Thomas Hubbard, of Toledo; assistant secretary, Dr. Charles Graefe, of Sandusky; treasurer, Dr. J. A. Duncan, of Toledo.

Atony of the Bladder.—Apropos of an article entitled *A Curious Condition of the Bladder; Atony?*, by Dr. James Kennedy, published in our issue for June 24th, Dr. Benjamin McCluer, of Dubuque, Iowa, calls our attention to the histories of two cases contributed by him to the *Transactions of the Iowa State Medical Society* for 1884.

* Read before the West Virginia State Medical Society, June 8, 1893.

THE
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Edited by
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, JULY 22, 1893.

THE SCOURGE OF THE SUBPŒNA.

IN another column we reprint an editorial article that lately appeared in the *New York Sun* under the heading of Medical Men as Witnesses. We have not seen the text of the act that forms the subject of the article, but, judging from the *Sun's* summary of its provisions, we can only say that it seems to us to be a very short step in the right direction. It is an everyday occurrence for physicians to be subjected to unnecessary hardship by judicial procedure—not, we are glad to believe, with any oppressive intention on the part of the courts, but because of the practical absence of all check upon the exercise by lawyers of the practice of subpoenaing persons on the mere chance of being able to turn them to account on the witness-stand. The *Sun* perceives that practitioners of medicine ought not to be forced into court without good and sufficient reason, but it wonders on what ground the originator of the act in question made its ostensible (but, as the *Sun* points out, unsubstantial) exemption apply to the medical officers of hospitals and other charitable institutions to the exclusion of physicians who are engaged only in private practice. As to the author's intentions we know nothing, but there are good reasons, we think, why hospital physicians are particularly entitled to such exemption, and those reasons are totally different from what the *Sun* seems to imagine.

The public in general and lawyers in particular appear to think that a hospital physician's time is wholly at their service; he is not only to do what he undertook to do at the time of his appointment—namely, look after the interests of the inmates to the best of his ability—but also to grant interviews to newspaper reporters at their convenience and to dance attendance on the courts indefinitely. Consequently such a physician is more apt to be summoned to court unnecessarily than one who is engaged in private practice. Suits for damages for bodily injury are commoner in hospital cases than in those that occur in ordinary practice, and, whereas the citizen who personally employs a physician is usually considerate enough to spare the physician unnecessary trouble and loss of time, the individual who as a hospital patient has already profited by his professional efforts entertains no thought of such compunction. Indeed, it is not uncommon for a medical officer of a hospital to be subpoenaed in a case about which he knows, and ought to be assumed to know, absolutely nothing, as when "the custodian of the records" (so the subpoena often puts it) is required to attend in a trial growing out of a case that has occurred in the practice of the hospital. In his character of custodian of the records he has no personal knowledge of the matters recorded,

and there is nothing to lead any lawyer to suppose he has; yet his attendance is commanded very frequently. This is certainly a hardship for which there is no excuse.

Out of court, lawyers are as just, considerate, and amiable as other men. In court their duties must at times grate upon their kindly inclinations. We feel sure that it is wholly by inadvertence that they annoy physicians in the way we have mentioned. We doubt if the law in question will do much to check them; we look rather to their own sense of justice, now that the matter has been brought to their attention, to lead them to restrain themselves.

CAFFEINE-CHLORAL IN CHRONIC CONSTIPATION.

PROFESSOR EWALD, of Berlin, has made use at the Augusta Hospital of a combination of the two drugs named in the heading. He has found it valuable for the treatment of constipation, when the compound is administered subcutaneously. He has made use of injections of four or five grains dissolved in water, and he has only failed once in thirteen cases of obtaining, as a result, thin stools; in some of these cases the ordinary drugs and free irrigation had been used without avail.

Ewald has also used the compound in a small number of rheumatic cases that had been resistant to the salicylates. In seven out of eight cases the injection of from three to six grains in twenty-four hours has been followed by reduction of pain and swelling in the affected joints. These injections, according to the information given in the Berlin correspondence of *Notes on New Remedies*, are usually not attended by any pain, although in a few cases there was a slight burning sensation at the point of the injection. The well known, but not very uniform, laxative action of caffeine appears to be intensified by the presence of chloral in the compound. If this is a fact, it would seem to be contradictory of certain experiments on the lower animals that have been reported as showing that caffeine, in the presence of chloral, is almost wholly masked. Urea and cyanogen, in like manner, are said to be masked when given with chloral. However it may be as to the overmastering agency of chloral with other substances than caffeine, it seems to be an indisputable fact that caffeine-chloral has a therapeutic future before it in the treatment of chronic constipation.

MINOR PARAGRAPHS.

CARBONATE OF GUAIACOL IN THE TREATMENT OF TYPHOID FEVER.

THE *Medical Week* for June 30th contains an abstract of Dr. F. Holscher's experience in the treatment of typhoid fever by the administration of carbonate of guaiacol in doses of fifteen grains night and morning. With this treatment the tongue became moist, the appetite returned, and the stools, that smelled strongly of guaiacol, gradually assumed a firmer consistence. In some instances the administration of the drug was even followed by constipation, but this usually disappeared spontaneously, seldom calling for the administration of enemata. It exerted a favorable influence on the bronchitis that so frequently complicates typhoid fever, relieved dyspnoea, and facilitated ex-

peccoration. It is not an antipyretic, but an intestinal antiseptic, and has no effect on the temperature when administered alone; but with acetanilide the effect produced is more marked and lasting than that obtainable with any other antipyretic. By its antiseptic action on the intestinal contents it prevents the formation of toxic products in the intestine, and the accidents caused by the absorption of these toxins into the circulation are prevented. Hence the patients treated by this method seldom show any ataxic or adynamic phenomena, and usually remain free from hallucinations and other cerebral manifestations. Dr. Hölcher was enabled to dispense with the use of cold baths, and his typhoid-fever patients never presented other than the mildest symptoms of the disease.

SO-CALLED FÖTAL RICKETS.

THREE cases are reported by Dr. John Thomson in the *Edinburgh Medical Journal* for June. Children are sometimes born with a peculiar deformity characterized by excessive shortness of the extremities and di-tortion of the thorax. They were formerly regarded as cases of fötal rickets, and afterward as fötal cretinism. Examination of the bones, however, has abundantly proved that the condition is not due to either of these diseases. It is called by Parrot achondroplasia, and by Kaufmann chondrodystrophia fötalis. The cause of this peculiar condition is unknown, but the anatomical characteristics are well understood. The deformity results from the arrest of the normal process of endochondral ossification which takes place during uterine life. Hence it occurs solely in the bones which are formed in cartilage and ossify early. Those which are formed in membrane or ossify late escape. The bones of the pelvis and thorax and the long bones of the limbs are, therefore, dwarfed and deformed, while the bones of the skull, trunk, hands, and feet are normal. Death usually occurs before or soon after birth. The three cases reported by the author are especially interesting, as two were in adults and the third was that of a child five months of age.

THE INCUBATION PERIODS OF THE INFECTIOUS DISEASES.

THE Clinical Society of London has recently published the result of extensive observations regarding the period of incubation of some of the infectious diseases. A constant period of incubation is not to be expected. In most instances it will be seen from the following table that the difference in the maximum and minimum period is not very great. It seems remarkable, however, that a disease should show such extremes as typhoid fever:

	Normal.	Maximum.	Minimum.
Varicella.....	12 days.	14 days.	9 days.
Varicella.....	14 "	19 "	13 "
Measles.....	10 "	14 "	4 "
Rubella.....	18 "	21 "	8 "
Scarlet fever.....	2 "	7 "	1 "
Influenza.....	3 "	5 "	1 "
Diphtheria.....	2 "	7 "	2 "
Typhoid fever.....	12 "	23 "	5 "
Mumps.....	19 "	25 "	12 "

It is a peculiar fact that the diseases in which the period of incubation is shortest are those in which the infection may persist the longest. The period of quarantine must be governed largely by the period of incubation, hence the subject is an important one for a variety of reasons. Dr. Dawson Williams, commenting upon these figures in the *Medical Magazine* of London for June, states that the period of quarantine should be at least a day longer than the maximum for each disease. This

is a very uncertain rule, however, for the patient should be free from all signs of illness, and especially from fever. The necessity for disinfection of clothing is shown by cases reported in which persons wearing garments which had been exposed to infection have escaped, while others coming in contact with the same clothes have contracted the disease. This is probably explained by the great susceptibility of certain persons to particular diseases. The period of infection is very doubtful. It may be greatly prolonged by some complication. This is especially true of small-pox, diphtheria, typhoid fever, and scarlet fever. The period during which a disease may be infectious can not be stated definitely. It varies with different cases, and must be determined according to the nature of the symptoms and the character of the case. Measles, chicken-pox, and mumps lose the direct power of infection very early, and the infective principle does not remain active for a long period in the room in which the patient has been ill. Measles, mumps, and chicken-pox may be infectious in the earliest stages before definite or characteristic symptoms appear. Small-pox, fortunately, is not actively contagious until the eruption has appeared. This statement, the committee affirms, has been proved by abundant observation.

A NEW NON-POISONOUS DISINFECTANT, IZAL.

THIS substance is of English origin, and the *Lancet* for July 1st states that it has been approved by Dr. Klein, biologist to the Brown Institution. It is derived from an oil that appears as a residuum from coke-making at the collieries, especially at those situated at Thorncliffe, near Sheffield. As a destroyer of germs, izal takes a higher rank than carbolic acid, but is non-poisonous unless the quantity ingested is very large. Extensive experiments in Dr. Klein's laboratory tend to show that one part of izal in two hundred parts of water is capable of destroying the micro-organisms of diphtheria, scarlet fever, glanders, erysipelas, and cholera.

According to the *Lancet*, the article may be obtained from Newton and Chambers, of Thorncliffe.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 18, 1893:

DISEASES.	Week ending July 11.		Week ending July 18.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	7	1	2	4
Typhoid fever.....	16	5	18	3
Scarlet fever.....	75	9	64	5
Cerebro-spinal meningitis....	6	7	5	3
Measles.....	204	13	189	5
Diphtheria.....	150	43	111	34
Small-pox.....	3	0	3	0

The New York State Board of Health.—It is announced that Dr. Florence O'Donohue, of Syracuse, has been appointed a member of the board.

The National Guard of Ohio.—Dr. Gilbert I. Cullen has been appointed assistant surgeon of the First Regiment.

Change of Address.—Dr. W. L. Stamper, from Wynnwood, Indian Territory, to McKenney, Indian Territory.

The Death of Dr. William Carson, of Cincinnati, one of the oldest and most highly esteemed practitioners of that city, took place suddenly on Sunday, the 9th inst.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 9 to July 15, 1893:*

The order assigning WALKER, FREEMAN V., Captain and Assistant Surgeon, to temporary duty at Fort Trumbull, Conn., is so amended as to relieve him from further duty at Fort D. A. Russell, Wyoming, and to assign him to station at Fort Trumbull, Conn., until further orders.

MASON, CHARLES F., First Lieutenant and Assistant Surgeon, is promoted to be assistant surgeon with the rank of captain.

KIMBALL, JAMES T., Major and Surgeon, is relieved from duty at Fort Clark, Texas, to take effect at the expiration of his present sick leave of absence, and ordered to Fort Marcy, New Mexico, for duty.

GARDNER, WILLIAM H., Major and Surgeon, on being relieved by Major Woodruff, is ordered to duty as attending surgeon and examiner of recruits at Headquarters, Department of Dakota, St. Paul, Minn., relieving REED, WALTER, Captain and Assistant Surgeon. Captain Reed, upon being relieved by Major Gardner, is ordered to report to the Surgeon General, at Washington, D. C., for duty as curator of the Army Medical Museum and as professor of clinical and sanitary microscopy in the Army Medical School.

CORBUSIER, WILLIAM H., Captain and Assistant Surgeon, is relieved from duty at Fort Wayne, Mich., and ordered to Fort Supply, Indian Territory, for duty, relieving BROWN, PAUL R., Major and Surgeon. Major Brown, on being relieved by Captain Corbusier, is ordered to Fort Hamilton, New York, relieving WOODRUFF, EZRA, Major and Surgeon. Major Woodruff, on being relieved by Major Brown, is ordered to Fort Keogh, Montana, for duty, relieving GARDNER, WILLIAM H., Major and Surgeon.

Book Notices.

Hypnotism, Mesmerism, and the New Witchcraft. By ERNEST HART, formerly Surgeon to the West London Hospital, etc. With Twenty Illustrations. New York: D. Appleton & Co., 1893. Pp. vi-182. [Price, \$1.25.]

This little volume includes certain papers that were originally published by the author in the *Nineteenth Century* and the *British Medical Journal*, and we have no doubt that their republication will prove to be useful and valuable.

The author reviews the old and the new practices of hypnotism, and then gives the details of a recent visit to M. Luys's wards at the Charité Hospital in Paris. Those that have followed the literature of the subject for the last few years will recall M. Luys's wonderful statements regarding what he had accomplished by means of hypnotism, and Mr. Hart was shown these wonderful phenomena. However, he had but a limited amount of credulity, and, as he found that M. Luys was unwilling to apply certain suggested check experiments, he had the "subjects" call at his rooms, and in the presence of a number of scientific gentlemen performed all the experiments that M. Luys had exhibited, and by means of intelligently selected check experiments proved to the satisfaction of those present that the whole performance was a gross imposture. We think that Mr. Hart has proved that Luys's experiments were conducted with incredible looseness in his methods, and that there were incredible extravagance and error in the deductions that he allowed himself to make from the false phenomena to which his mode of experimentation inevitably led.

The volume is written in a style that will enable the lay reader to understand the subject, and it is to be hoped that its wide circulation will correct many of the popular impressions regarding the possibilities of hypnotism. We would espe-

cially commend Mr. Hart's conclusion regarding the alleged advantages of the employment of hypnotism in certain neuroses, in alcoholism, and in the cases of backward or naughty children, that the effect of its employment is to weaken the will power that it is desirable to strengthen.

BOOKS, ETC., RECEIVED.

Nursing: its Principles and Practice. For Hospital and Private Use. By Isabel Adams Hampton, Graduate of the New York Training School for Nurses, attached to Bellevue Hospital; Superintendent of Nurses and Principal of the Training School for Nurses, Johns Hopkins Hospital, Baltimore, Md., etc. Illustrated. Philadelphia: W. B. Saunders, 1893. Pp. ix-17 to 494. [Price, \$2.]

A Contribution to the Pathology of the Vermiform Appendix. By T. N. Kelynack, M. D., Pathologist to the Manchester Royal Infirmary, etc. With Illustrations and Bibliography. London: H. K. Lewis, 1893. Pp. x-223. [Price, 10s. 6d.]

A Manual of Diseases of the Ear. By George P. Field, M. R. C. S., Aural Surgeon to St. Mary's Hospital, etc. Fourth Edition. Illustrated with Colored Plates and Woodcuts. Philadelphia: Lea Brothers & Co., 1893. Pp. x-382. [Price, \$3.75.]

Hypnotism, Mesmerism, and the New Witchcraft. By Ernest Hart, formerly Surgeon to the West London Hospital, etc. With Twenty Illustrations. New York: D. Appleton & Co., 1893. Pp. vi-182. [Price, \$1.25.]

The Health Resorts of Europe. A Medical Guide to the Mineral Springs, Climatic, Mountain, and Seaside Health Resorts, Milk, Whey, Grape, Earth, Mud, Sand, and Air Cures of Europe. By Thomas Linn, M. D., Doctor of Medicine, Faculty of Paris, etc. With an Introduction by Titus Munson Coan, M. D. New York: D. Appleton & Co. Pp. xxiii-330. [Price, \$1.50.]

Lymphoid Growths in the Vault of the Pharynx. By Thomas R. French, M. D. [Reprinted from the *Brooklyn Medical Journal*.]

Colles's Fracture. Illustrated by Photographs of Splints used in Treatment, and by Photographs of Cases. By E. H. Woolsey, M. D., Oakland, Cal. [Reprinted from the *Transactions of the Medical Society of the State of California*.]

The Mutual Interest of the Medical Profession and Insurance Companies in the Prolongation of Life. By Charles Denison, M. D., Denver, Col. (Read before the Section in Medicine of the American Medical Association, June 7, 1893.)

The Relation between Uterine Disturbances and some of the Insanities. By C. C. Hersman, M. D., Pittsburgh, Pa. [Reprinted from the *American Gynecological Journal*.]

Case of Cancer of the Hepatic Flexure of the Colon producing Intestinal Obstruction; Temporary Relief by an Artificial Anus; later Re-establishment of the Continuity of the Bowel by Ileocolostomy by Means of Murphy's Button. By William W. Keen, M. D., Philadelphia. [Reprinted from the *Annals of Surgery*.]

New Inventions, etc.

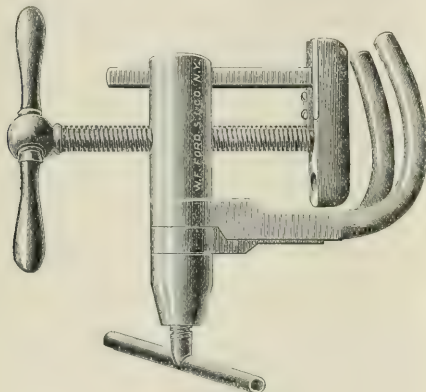
THE IMPROVED "GRATTAN" OSTEOCLAST.

By A. M. PHELPS, M. D.,
NEW YORK.

WHEN Mr. Grattan, of Cork, Ireland, exhibited his osteoclast before the American Orthopedic Association last September,

and subsequently in my clinic at the Post-graduate School and Hospital, where he performed osteoclasis in several cases, I observed that the "jack" in almost every case lacerated the skin. In other words, the result of the operation was not osteoclasis, but rather osteotomy, because a compound fracture was produced. I had subsequently made an osteoclast by Mr. Ford after Mr. Grattan's model. This was intended to obviate the injury done to the skin, and it accomplishes the desired end.

The screw used by Mr. Grattan, I thought, was too small, and the jack too sharp. The small screw did not propel the jack to and from the bone quick enough, and the jack, being comparatively sharp, cut through the skin. The screw as now made is nearly double the size of Grattan's original instrument, and the jack much blunter. The osteoclast so made, together with another recent addition made by Mr. Grattan himself (I allude to the horizontal bar for holding the jack, instead of a long perpendicular pin held by an assistant), makes one of the most perfect osteoclases I have ever seen. I have discarded the



use of all others, and now more frequently resort to osteoclasis than osteotomy. I formerly preferred osteotomy more frequently than osteoclasis.

The appended figure conveys a correct idea of the instrument.

A MULTIPLE POWDER BLOWER.

By J. W. GLEITSMANN, M.D.,
NEW YORK.

It has been the desire of the writer for some time past to devise a powder blower which would not only permit of doing away with the necessity of filling the cannula each time when used, but also would serve as a receptacle for different powders, thereby uniting several instruments in one, and, if desirable, enabling the operator to use either one powder alone, or two or three combined.

The first experiments were made with an instrument which had stationary cups with stopcocks, through which, when opened, the powder fell into the cannula, from which it could be blown out. Aside from being cumbersome and somewhat heavy, the main disadvantage of this powder blower rested in the difficulty of cleansing, which is always necessary after a

prolonged use of tenacious, sticky powders, such as aristol, euphene, etc. At last a modification of Politzer's instrument was adopted, described by him in the second edition of his handbook on ear diseases.

In the illustration here given we see three movable cups on



a stationary cannula, which is perforated in its whole length. There are attached to each cup little ivory buttons, and one to the cannula. Each cup has an opening at the bottom, which corresponds to a similar one in the cannula, when the ivory buttons of both are in a line. These openings are large enough to allow sufficient powder to fall through, after which the cup is turned downward and the instrument is ready for use. If more powder is desired for the application, the cup is left standing upward, when powder continually drops down. The above cut represents two cups open, one closed (c).

The instrument is very light in weight and does not interfere with the field of vision, because the cannula being filled, all the cups are turned downward, which is important, when the nasal attachment (a) is replaced by the laryngeal tube (b). The whole instrument can easily be taken apart and cleaned, the cups being separated by washers. A small quantity of alcohol quickly removes all the adherent powder from the cannula and the cups. If obstructions are raised to the soft rubber attachment of Rauchfuss (d), by which the physician himself blows the powder out of the cannula, the tubing can easily be replaced by a stationary bulb attached to the cannula, or by a double bulb as used for spray purposes.

The instrument is made with the usual precision by the firm of Tiemann & Co. of this city.

Miscellany.

Our British Brethren.—The recent meeting of the American Medical Association in Milwaukee seems to have met with unusual attention at the hands of medical men in Great Britain. The *British Medical Journal* for July 1st publishes the following:

"The forty-fourth annual meeting of the American Medical Association was held at Milwaukee on June 6th, 7th, 8th, and 9th. After the association had been welcomed by the Governor of Wisconsin, the president of the association (Dr. Hunter McGuire) delivered his address, a large part of which dealt with the aim and organization of the association. The object of the association was to study the origin of disease, its nature and its course, to learn how to prevent it and how it might be cured. Much yet remained to be learned with regard to the endemic diseases of the various sections of the country. In particular many problems remained to be solved in connection with malarious disease. The police regulation of small-pox was a matter involving grave considerations for the General Government and for the several States in the Union. Notwithstanding the dissemination by antivaccination societies of all sorts of misrepresentations, vaccination had been growing in favor, and now the great majority of the educated classes have become convinced of its importance. Compulsory laws have been put in force in the larger number of European countries, and especially in the German Empire, where not only the army but also the people at large

are compelled to submit to vaccination at stated intervals—once every third year being the rule for the army. He said that one of the most important questions of the hour was quarantine, and in connection with this he sketched briefly the spread of cholera during last year and the occurrence of yellow fever in the Southern States at various times. A difficulty in dealing with infectious diseases in America was the rooted dislike to the curtailment of the personal liberty of the citizen for the benefit of the people at large. A further difficulty in the way of the enactment of general quarantine laws was the complex character of the maritime and railroad commerce and travel of the United States. Fully recognizing the difficulties thus created, he yet held that all patriots, representing every shade of political opinion, should unite in demanding of Congress the passage of a law—strong, concise, and yet comprehensive—that will enable the Government to properly protect its citizens against disease whenever, in the discretion of its officers, the emergency may have arisen. There is as much reason why the power of the Federal Government should be invoked to aid in repelling the advent of pestilence as to aid in repelling the advent of a hostile fleet or army. He then touched upon the need for the organization for a National Board of Health, and concluded by a reference to the progress which had been made by the *Journal of the American Medical Association*.

"Mr. Ernest Hart was then introduced, and in a short speech stated that he brought a greeting to the American Medical Association from the British Medical Association.

"Much of the time of the general meeting on this and the following days was occupied by the reception and discussion of various reports of committees.

"On June 7th Dr. H. A. Hare delivered the annual address on General Medicine, which he devoted to a review of Some Practical Advances in Medicine and Therapeutics. The address dealt with the broad facts illustrative of the present status of the non-surgical phases of advance in medicine. The increased scope, variety, and accuracy of diagnosis no longer left any excuse for empiricism; ailments previously considered specific were being recognized as due to some true causative, and therefore curable, disorder. As an example of such evolution in the art of diagnosis, he instanced the case of anemia; when by accurate microscopic devices it had become possible to count and measure the decrease and increase of blood corpuscles in number and size, then a basis for the test and proof of the value of arsenic for pernicious anemia and of iron in chlorosis was obtained.

"On June 8th Mr. Ernest Hart delivered an address to the association on Cholera, Where it comes from, and How it is Propagated. An abstract of this address will be found on page 1. The conclusion of the address, which was listened to by a crowded audience, was received with loud applause, and upon the motion of Dr. Windgate, chairman of the Committee of Arrangements, a vote of thanks was carried by acclamation, and the address was ordered to be printed and copies forwarded to all members of the State boards of health.

"The address in Surgery was delivered by Dr. Henry Mudd, of St. Louis, and was entitled Surgical Problems. The first problem to which he referred was the use of drainage. He said that recent advances had clearly defined a marked difference in the object to be obtained by primary and secondary drainage. While no intelligent surgeon would discard the use of secondary drainage in suppurating wounds, there were many who considered it unnecessary in fresh, clean wounds, whatever their extent. The second problem to which he turned was that of the radical cure of hernia. He thought that while the permanent cure might be hoped for in many cases in children by the use of a truss, such a favorable result in adults was most improbable, and should not influence the decision as to the propriety of operative relief. Permanent recovery followed operation in from sixty to eighty per cent. of the cases, and even the lower percentage justified continued operative efforts. The third problem upon which he touched was that of the treatment of appendicitis. He thought that the treatment of each case must be determined by individual consideration, but added that the anatomical and clinical investigations of the past few years had clearly demonstrated that the theory of the pathology of inflammation in this region which had arisen in America was a correct one.

"Dr. Walter Wyman, of Washington, read the address on State

Medicine, taking for his subject The Extinction of Contagious Diseases. He observed that the history of the world showed that many races of animals had become extinct, and that certain diseases that once prevailed extensively as epidemics had lost their strength or had been so controlled during recent years as to warrant the belief that their histories were closed or fast closing. He pointed out that yellow fever, which had at one time been of frequent occurrence in Europe, affecting Spain in particular severely between 1801 and 1825, that the last epidemic in Europe had been that in Lisbon in 1867. In the same way in the United States the disease at one time had invaded not only the South, but the North, whereas to-day constant vigilance had caused it practically to vanish from the ports of the United States. Since the discovery of vaccination small-pox, though still a stubborn foe, was under restraint, and it was a matter of choice whether or not an individual should be made absolutely proof against the disease. He quoted statistics to show the good effects of compulsory vaccination. Typhus fever, he said, had no permanent lodgment in the United States, and the measures instituted by the Board of Health of New York during the past winter to suppress the disease afforded a striking example of what might be accomplished by laws energetically executed and by disinfection scientifically applied. Finally, speaking of cholera, he foretold that the disease would shortly be eradicated from every English-speaking country by the energy and love of cleanliness characteristic to the Anglo-Saxon race. In conclusion, he touched upon the possible future benefits to be derived from protective inoculation in this and other diseases."

In the same issue of the *Journal* Mr. Ernest Hart, its editor, writes as follows:

"The Milwaukee meeting of the American Medical Association was a very interesting, well-ordered, and lively meeting; the attendance was over a thousand, and from every part of the States. New York, which is heretical on the question of consultations with homœopaths, still holds aloof, but the association is strong enough in the support of the most active-minded professional men in the States to dispense easily with the adhesion of any particular section. In their strong upholding of the *Code of Medical Ethics* as the test of membership, the association has taken up a firm and unassailable position. Since it has acted on the advice which I tendered some ten or twelve years ago, when consulted by Dr. Sayre, Dr. Post, Dr. Pack, and others on the subject of the best means of promoting the growth of the association, the membership has more than doubled, and it is now five thousand. The weak point which I laid my finger on was the evanescent character of the membership, which then depended upon annual delegation from the respective State societies, which are the constituent bodies, corresponding in that respect, but differing in others, from our branches. There are still, however, some other defects of organization, which I think could easily be remedied, but which hinder the growth of the American Medical Association. On some of these I have been in consultation with members of the executive, and have been asked to renew them in writing; they were meantime received with approval. The system of election of the governing body is capricious, and does not provide for stable and complete representation, but leaves room for much canvassing and wire-pulling, and by its elaborate incoherence raises opportunities for side issues and local contests quite irrelevant to the true objects of the association. Some of the principles which at present govern the selection of matter for the *Journal* and the conduct of its editorial department are incompatible with the high scientific, professional, and literary attractions which it ought and might easily be made to present. All this might be altered without additional expense for the moment, and the *Journal* be made to serve the best interests of the association and the profession, and to add largely to its resources, which could then be available for making its pages yet more attractive, so that it should—like the *British Medical Journal*—be the chief recruiting agent for the association. This position, it is acknowledged on all hands, it does not at present occupy, faithfully and ably as it has been edited by Dr. Culbertson and his distinguished predecessors, among whom Dr. N. S. Davis, the founder of the association, holds an honored place.

"My suggestions bear chiefly on the transference of the power of election of the governing body from the 'fortuitous concurrence of atoms'—as it has been described in our columns by a correspondent—

called a 'general meeting' to the county societies, who are the constituent bodies and who should therefore be the elective power. From these representatives should be constituted the subcommittees for detailed work, who should act under and be governed by its authority. There are at present more than one separate controlling committee of 'trustees,' of 'judicial action,' of 'nomination,' etc., who act independently of each other, and are constituted hurriedly and by caucus influence at the general meeting—a system which might well injure any society, and which has more than once provoked deplorable and painfully mischievous schisms. It speaks highly for the inherent and unquenchable vitality of the principle of the association—"broad based upon the people's will"—and of the vigorous love of the profession and the association which actuates the most respected members, that the association has ridden successfully through all such storms. It survives and develops, but with maimed vitality throughout the year, and without that powerful influence on public affairs and professional progress which it might derive from better constituted committees of government, and of public and parliamentary administration, and from a more attractive and effective voice and tongue in its *Journal*. In saying this I speak of new things, and with none but the most appreciative and respectful spirit. The meeting was large and much of the work was first rate.

"Milwaukee is a city of lawns, gardens, and lake, beautifully situated on a bay of Lake Michigan, and with abundant open spaces, well preserved for civic ornament and health. Within the memory of the present generation it was the haunt of the red Indian; it has now a quarter of a million of inhabitants, with fine hotels—Pfister's Hotel, which was the headquarters of the association, is one of the best in the world—public buildings and business palaces, electric lighting throughout the town, and electric tramways. It is the headquarters of lager beer brewers, and the wealthy citizens aided the profession to make the meeting one of generous and continuous hospitality.

"In accordance with the invitation of the association received in Europe, I delivered an address on the Prevention and Proximate Extinction of Epidemic Cholera in Europe—mainly by the purification of the water supply and strict procedure to insure the purity of drinking water. The address, which was based upon an analysis of all European epidemics of the last thirty years, was received, as will be seen from the published reports, with great favor. It was ordered to be printed, and sent, with the indorsement of the association as to the importance of its suggestions, to the executives of all the States and to the State boards of health. That is a compliment which I value even more highly than the kindly enthusiasm and applause which greeted its delivery. At the close of the meeting I was presented by the reception committee with a gold badge enameled with the initials of the American Medical Association and the year of meeting—a souvenir to which I shall attach a permanent value, and which will recall many pleasant incidents of the meeting, some of them too personally complimentary to relate.

"It was particularly gratifying to find the *Journal* held in such high esteem and so extensively read. It was constantly, and indeed without exception, referred to as the chief medical journal of the world; and its usefulness to the practitioner as a helper in his scientific knowledge and daily work was referred to by one medical editor after another at the medical editors' banquet, and by scores of medical colleagues, who specially introduced themselves or were introduced to me for the purpose of thanking the British Medical Association for its *Journal*. If our laws admitted of it we could have some thousands more of members or associates among our English-speaking brethren on the American continent, while limiting ourselves to members of State medical societies legally constituted and of good ethical standing.

"The banquet of the Medical Editors' Association was a most lively and original affair. In so vast a continent, where capitals are situated at often a thousand or two or three thousand miles distant, and with a population of more than sixty millions, it is natural that the astonishing literary activity of the nation should find a corresponding representation in the abundance of journals of all kinds. But I was hardly prepared to be the guest of one hundred medical editorial colleagues—all of regular standing—with three hundred more in reserve. I addressed them on Medical Journalism, in words of which I send a report—disfig-

ured, however, by a great number of misprints and errors due to my 'English brogue' and intonation worrying the reporters. I have only had time and patience to correct some of them; others I must leave to the indulgence of any readers of whatever text or part of the text may be published. It will be gathered from reports in the various medical papers what was the impression produced. It was applauded enthusiastically, and I was assured in all the complimentary speeches that followed, and by innumerable eulogists during the subsequent days, that it will not be without permanent usefulness. Of course I had nothing new to say, but even the scattered and desultory thoughts of however humble an orator gather some force from a lifetime of experience and from the disinterested desire of a stranger to be useful in the utterance of its lessons to himself.

"Altogether, then, my visit to the Milwaukee meeting has, I hope, been useful, as it has certainly been most pleasant, renewing and strengthening the bonds of mutual good will and esteem between the American and British Medical Associations, and promising to promote good understanding and fellowship with our English-speaking brethren in the United States. To me personally it has been a week of hard but happy work, and of much social satisfaction. I am loaded with friendly and pressing invitations to other cities, among them Boston, Philadelphia, Detroit, Cincinnati, Danbury, St. Louis, Louisville, etc., and could easily spend here an active and happy six months in hospitable hands; but as I must be home early in July to continue editorial and Parliamentary work—meantime in such excellent and able hands—I shall be unable to fulfill on this occasion more than a tithe of these proposed hospitable engagements, but shall hope to return later on."

The same number of the *Journal* says editorially:

"Numerous reports and editorial articles in the leading American journals indicate that Mr. Ernest Hart's reception in the United States has been remarkably cordial and stirring. As the invited guest of the American Medical Association, and as specially delegated by the Council of the British Medical Association to the American Medical Editors' Association, Mr. Ernest Hart was, of course, sure of a hearty and hospitable welcome such as our transatlantic brethren so well know how to give. The welcome he received, however, has gone far beyond the bounds of formal official courtesies. It was a spontaneous expression of esteem for the individual and of the strong feeling of brotherhood which exists between the medical profession in this country and in the Great Republic.

"The *Journal of the American Medical Association* had announced Mr. Ernest Hart's approaching visit as an event anticipated with great interest, and many other medical journals had made flattering references to the great part which he has played in the growth of the British Medical Association in his capacity as editor of its *Journal*, for the *British Medical Journal* has long been honored with the esteem and admiring approval, often expressed, of the leading members of the profession of the United States, and has been the theme of appreciative estimates by its medical journalists.

"The profession in Chicago, where Mrs. Ernest Hart's Donegal Industrial Village has created the liveliest sympathy and interest in the World's Fair, and the municipal officers of the city have vied with each other in extending courtesies to him. It appears also that he was expected by the daily press to express opinions on sanitary matters, especially on the prevention of cholera. Judging from the reports which have appeared, Mr. Ernest Hart, while expressing himself with great reserve and deprecating the tendency to exaggerate the possible dangers, has not hesitated to speak in decided terms as to the dangers which may arise from any neglect to protect the water supplies.

"An abstract of his address upon this subject before the American Medical Association is printed in another column, and we refer to its teachings elsewhere in the present issue. We find that the municipal authorities of Chicago placed at his disposal the city steamboat, for the purpose of inspecting the water intakes from the lake. The expedition was conducted by the superintending medical officer of health, Dr. Reynolds, recently appointed, and the party, an account of which is given in the *Chicago Herald* of June 14th, numbered among its members the leading physicians of Chicago, Dr. Owens (the chief medical officer of the World's Fair), Dr. Ingalls, Dr. Love (St. Louis), Dr. Finkler (of Bonn), Professor Reimers (of Hamburg), Dr. Ranch (for many years

medical officer of the State Board of Illinois), besides Professor Jürgens (of Berlin), Dr. Pott (of Vienna), and others, charged with the duty of official report to their invitation.

"The results of Mr. Ernest Hart's observations on this occasion were to be communicated to a meeting of the Chicago Medical Society last week. We gather from the report in the *Chicago Herald*, however, that he was disposed to attribute the prevalence of typhoid fever last season to the use of the polluted water from the inshore intake, now happily closed, and that he warmly approved of the substitution of the new four-mile intake. The report in the *Chicago Herald*, which bears obvious indications of having been altered and dressed up *more Americano*, passes over the 'little defects' with a very light hand, but makes Mr. Ernest Hart's compliments to that magnificent body of water, Lake Michigan, which has been so thoughtlessly fouled, and his observations that Chicago has 'at its doors' the purest water supply in the world, the justification of such sensational headlines as 'The Best Fluid on Earth,' 'Ernest Hart concludes that the Supply from Lake Michigan is the Purest in the World.' These expressions are not entirely borne out by the text of Mr. Ernest Hart's statement, which only indicates that Lake Michigan is capable of supplying an unsurpassed body of pure water when the 'little defects' which he has to point out are remedied.

"The ostrich policy of hiding up the textual warnings by flashy headlines of an opposite significance is not very wise or dignified. To those accustomed to read between the lines the meaning of such devices is plain enough; but it is not every one who will read between the lines. The *Chicago Herald* is one of the ablest and most influential journals in America, and it hardly does well to lull its fellow-citizens into a false security. It should rather stimulate them to accelerate necessary reforms.

"Mr. Ernest Hart's address on Medical Journalism, extracts from which we publish elsewhere, was a more purely literary effort than that on cholera. It contains an account, which can not but be found highly interesting, of thirty years' devotion to the development and consolidation of medical journalism as a power capable of being used as a weapon for the promotion of great medical and public interests. The address ranged over a wide field, touching the mainsprings of the 'higher journalism,' as contrasted with the perverted and, it may be hoped, ephemeral fashions of what is sometimes called the 'new journalism.'

"On the whole, the results of the visit have their obvious international use in promoting international comity, the exchange of views and of greetings. Utterances so candid and fearless may be expected to provoke some wholesome criticism, tempering the chorus, thus far universal, of courteous praise and unqualified acquiescence; but that also is one of the objects and advantages of free speech and the interchange of ideas across the ocean. The universally gracious and complimentary reception tendered to the editor of the *British Medical Journal*, and the admiration everywhere felt throughout the great American republic for the aims, methods, and achievements of the British Medical Association, reviewed and studied from afar and therefore dispassionately and impartially, have found a voice on the occasion of Mr. Hart's visit. Its echoes will not soon die away, but will remain an enduring remembrance, and will form an agreeable and useful episode in the medical history of our time and of the English-speaking race."

The *Lancet* of the same date says in its editorial columns: "Milwaukee seems to be a very desirable place for people to live in unless they happen to follow the medical calling. The American Medical Association has lately held in that city its forty-fourth annual meeting. It was appropriately and warmly welcomed by His Excellency George W. Peck, the Governor of Wisconsin, and by the Hon. P. J. Somers, the mayor of Milwaukee. It is from the address of the Governor that we gather the virtues of Wisconsin as a place of residence. It reminds us of a description of the climate of Australia sent home by one of the early emigrants—that it was so healthy that nobody died there worth speaking of. Wisconsin, according to the Governor, contains within its borders everything necessary for man's comfort except gold—rather an important exception, by the way. Medical men are entirely unnecessary there and people can not tell why they come or how they make a living when they do come. There are cemeteries, it seems, but this is

only for the accommodation of those who become ill in other and less happy climes and who have deferred too long to repair to Wisconsin. Such descriptions recall Arbutnot's account of Weymouth: 'It was such a healthy place that physicians could neither live nor die there.' However unhappy the lot of the resident physicians, the American Medical Association was welcomed in a most hospitable way by the Governor as representing two millions of people—and indeed in a way which seemed to show that the hosts were not without experience of the value of the medical profession. The mayor spoke much to the purpose, and declared that it should be the aim of their law-makers to make their great country a leader in everything pertaining to the health of the community and of individuals. 'It was the duty of commonwealths and municipalities to hold up the hands of members of the medical profession at all times, and especially during the prevalence of epidemic diseases; and public officials who did not do so to the full extent of their powers were guilty of nothing less than treason.' These words are worthy of a place in medical literature. If they represent anything like the sentiment of public men in the United States, we may hope ere long to see the medical profession more recognized in public law than it is now and to hail the triumph of those who seek to raise the standard of medical education and medical examinations throughout the country. One feature in the business of the meeting was the adoption of a report asking for the appointment of a committee of ten to wait on President Cleveland in order to request him to incorporate a recommendation in favor of the appointment of a secretary of public health in his next annual message to Congress. In some form or other we may expect to see such a recommendation acted on by the Government of the United States. It is characteristic of the people of the States that, though fond of personal liberty, they are intolerant of those forms of it which involve injury to others. If the public law is not sufficiently strong or prompt to protect the public health and life from infected individuals they are apt to take the law into their own hands and to rather roughly assert the rights of the majority.

"The meeting itself appears to have been one of interest. The papers read were not of very striking originality. Perhaps we should except two of them from this remark, one of which included tracings in a case of bradycardia—where the pulse-rate was as low as twelve per minute; the patient's only complaint was of headache caused by aural vertigo; no valvular murmur could be detected, but Dr. Ferguson, who detailed the case, believed that there was obstruction somewhere in the aorta. Such cases are very rare, but a rate as low as seven beats has been recorded. We may also note a paper read by Dr. Charles Dennison, whose communication was a plea for a system whereby persons whose lives are insured should be sent, at the expense of companies whose policies they hold, to a suitable climate in case they develop phthisis. The companies are to find the benefit in a prolongation of the time over which the insured continue to pay premiums. It would seem almost as reasonable to suggest that they should be sent at the expense of the medical profession, so that the time over which they paid medical bills might be extended. In both cases the objection occurs to us that the sums paid in averting an evil that might not happen would soon obliterate the advantage of any problematical postponement of the time when the insurance became a claim; but this was not the view of the association, which considered the paper so important as to refer it to a special committee to report thereon to a later meeting of the section. Certainly there were many communications of great interest. Among them we can only mention a few. The address on General Medicine by Dr. Hare was noteworthy; so was the address on Surgery, by Dr. Henry M. Mudd, of St. Louis, in which the advantage of drainage in surgery was placed above all other antiseptic measures except soap, water, and heat. The paper also included a very able discussion of the subject of appendicitis and surrounding inflammations, which, the writer maintained, resulted not so much from concretions as from irritative catarrhal obstructive conditions. Dr. Anders, of Philadelphia, read an excellent communication on Some Points in the Clinical History of Erysipelas, with an analysis of 2,110 cases. He showed that most cases occur in April and that temperature has the least and relative humidity the greatest influence on it. A combination of low barometric pressure with a mean relative humidity most favors the development of the disease.

"We wish all success to the association. It has difficulties to meet in the vast area of its territory and in the consequent varied conditions of life and practice. But it should be supported by the profession, and, as the mayor of Milwaukee suggested, should be welcomed by all communities as representing a calling indispensable to civilization."

The Pharmacology of Acetone.—The concluding portion of an article entitled *Organic Oximides: a Research on their Pharmacology*, by Dr. H. W. Pomfret, an abstract of a paper read before the Royal Society of London, published in the June number of the *Medical Chronicle*, is devoted to acetone. The author says he has examined the actions of acetone on the isolated tissues and organs, and has found that, except in the case of voluntary muscle, these actions differ in little from those of propylaldehyde. Nervous depression is the cardinal feature of the general action of acetone on the frog. Injections have paralyzed the spinal cord. In muscle-nerve preparations acetone quickly depresses the irritability of the nervous path.

It is in its action on voluntary muscle that acetone diverges most from the aldehydes. Pure acetone causes no contractures in muscles, and the muscle irritability is depressed rather than the contractility. In fact, the action of acetone on voluntary muscle he has found to closely resemble that of ethyl alcohol.

On the vessels of the tortoise and excised sheep's kidney, acetone has not been found to possess any action, beyond at times an equivocal contraction.

Acetone is almost innocuous to the frog's heart in all but very strong doses, when the only action is depressed systole with final arrest in diastole.

Seeing, therefore, the resemblance in action found to exist between a ketoxime and an aldoxime, and also between isonitrosoacetone and an aldoxime; seeing, further, the resemblance in action between the involved aldehydes and ketone, it must follow, as a corollary, that the influence of the oxime group must in each case be the same. This influence is that of a nitrite, as was also found to be the case in the aromatic aldimines.

The only discrepancy arises in the actions of acetoxime and of isonitrosoacetone on voluntary muscle. They both give rise, when present in strong solution, to the development of some contracture, a phenomenon which can not be ascribed to acetone.

During the course of this research it has been sought to explain the nature of muscle contracture, and it has been determined that the phenomenon is probably due to direct irritation of the nerve end plates, the irritant in the case of these oximide bodies being an aldehyde, or, perhaps, more accurately, the COH group.

In support of this contention several facts may be here adduced.

It is an active process associated with an increased formation of heat.

Tracings show the onset and decline of contracture to be in relationship with the shortening and lengthening of the latent period.

The development of contracture is prevented by curare.

A primary increase of irritability in the nervous path of muscle-nerve preparations can be traced to the end plates.

This irritability, better expressed as exalted conductivity of the end plates, becomes more marked as the power of the aldehydes to cause contracture increases.

The decline of contracture is synchronous in its onset with the loss of conductivity through the end plates.

Experiments on the oxidation of acetoxime and isonitrosoacetone have led to the detection of an aldehyde—pyracemic or acetylformic aldehyde. This formation of aldehyde, should it take place in the tissues, would then be a sufficient explanation for their giving rise to contracture. On the other hand, it might well be argued that the oxime group, while in all other respects giving rise to actions identical with those of nitrites, yet exerts a primary stimulant action on nerve centers and on the muscle end plates. Such an action this investigation has not disproved.

Persistent Sneezing under Chloroform Anæsthesia.—In the *Indian Medical Record* for May 16th Dr. E. L. Chalke, of Berhampore, gives the following account of a case:

"A well-proportioned Hindu male, aged thirty-four years, was admitted into the Berhampore Municipal Hospital as an in-patient, suffering from complete staphyloma of the right cornea with disorganization of the eyeball requiring extirpation. He had, besides, granular lids of the same eye of some years' standing.

"*Operation.*—As it was decided to remove the eyeball, the patient was placed on the operation table, and I administered the chloroform. When he was completely anesthetized, the district surgeon, Dr. T. J. Hackett-Wilkins, adjusted the stop speculum into the affected eye.

"Almost immediately this was done, the patient began sneezing persistently for a couple of minutes and recovered consciousness. In the meanwhile the speculum had to be removed. The patient was again chloroformed, and when completely under its effects the stop speculum was again adjusted, when the sneezing reappeared, the patient recovering consciousness as before. For the third and last time the inhalation was repeated, when the same events occurred on adjusting the speculum. As he had already inhaled a large quantity of chloroform, it was thought advisable to postpone the operation to a subsequent date. After the lapse of four days he was a *second time* placed on the operation table and chloroform was administered, a hypodermic injection of half a grain of cocaine having been previously given. He was very quickly anesthetized, and, the speculum being adjusted, the sneezing commenced again, and the man recovered consciousness. He was again chloroformed, but on this occasion a four-per-cent. solution of cocaine was dropped into the affected eye at frequent intervals as a local anæsthetic. When completely narcotized the stop speculum was adjusted, but no sneezing occurred, and the operation was performed without any further trouble.

"*Remarks.*—When the patient was chloroformed on the first occasion (three times) it was puzzling to discover the cause of the sneezing, especially when the patient was completely anesthetized—a stage when all reflex actions are temporarily abolished—but on carefully judging the time of the occurrence of the sneezing, soon after the adjustment of the speculum, the idea of combining the effects of cocaine as a local anæsthetic suggested itself, which was adopted only on the second occasion, but not until there had been a repetition of the sneezing as on the first occasion. The cocaine had the desired effect of deadening the sensibility of the eye and stopping reflex action.

"In order to illustrate the physiological action of sneezing in this particular instance, I shall try to explain briefly how this most probably occurred.

"It has been stated that the eyeball was chronically affected for some years from granular conjunctivitis and complete staphyloma of the cornea; consequently the sensory nerves of these structures must have participated in the inflammatory process and become hyperæsthetic. The distribution of these nerves is briefly as follows: The nasal nerve, a branch of the ophthalmic as it passes the inner side of the orbit, gives off three branches, the long and short ciliary and the infratrochlear, which supply sensation to the cornea, sclerotic, conjunctiva, and the integument of the side of the nose.

"The nasal nerve then passes through the shallow groove in the cribriform plate of the ethmoid and divides into an internal and external branch, supplying the mucous membrane and integument of the nose with sensation. It therefore appears that the irritation caused by the pressure of the speculum on the hypersensitive nerve filaments must have been transmitted to the nose by the nasal nerve, and excited the persistent sneezing so characteristic in this case, just in the same manner as the sun's light, falling strongly on the eye, produces a tickling in the nose.

"The next question which naturally suggests itself is, Why should reflex action occur when the patient is completely anesthetized? To explain this particular point I shall quote the words of a favorite authority on this subject: 'All parts of the body do not become insensible in equal times. Certain portions of the skin and subcutaneous tissue retain their sensibility with extraordinary tenacity: these are the matrix of the great toe nail, the margin of the anus, and the whole of the skin of the organs of generation. It is impossible to obliterate their sensibility without pushing chloroform to a degree which greatly surpasses that required for ordinary purposes.'

"As mentioned previously, the patient was perfectly anesthetized and the conjunctivæ and corneæ insensible to the touch of the finger, and the man was, for all ordinary purposes, sufficiently narcotized for the operation, but, owing to the hyperæsthetic condition of the nerves of the eye, reflex action was not completely annihilated, and the speculum being of a hard nature, pressing forcibly on the nerves, excited the sneezing."

Linear Craniotomy for Microcephalia.—Dr. John Barlow, surgeon to the Glasgow Royal Infirmary, contributes the following to the June number of the *Glasgow Medical Journal*:

"The case which I bring before you to-night is a girl, M. T., aged two years and eleven months, who first came under my notice in the Dispensary of the Glasgow Royal Infirmary nine months ago. Her father, an intelligent man, sought advice because the child could not walk or talk, and did not recognize any of the members of the household."

"Her condition was noted on three occasions at intervals of a month, and, as no improvement occurred, she was admitted into the Infirmary on the 23d of November."

"The histories of the father, aged twenty-nine years, the mother, aged twenty-six years, a sister, aged five years, and a brother, aged seven months, present nothing of interest. There is no history of syphilis. I was told that the mother never noticed the presence of the anterior fontanelle after birth in the girl. The mother thought that something must be wrong with the head of the patient's baby brother because it had the open fontanelle. It was noticed that during the first year after birth the child was in a sleepy or drowsy condition."

"When the girl was fifteen months old she burned her fingers three times in one day by placing her hand upon a hot teapot, but she did not cry much."

"She has never shown any interest in or recognized those about her. The father, who is evidently much attached to the girl, is quite sure that she does not recognize him. The parents naturally contrast the amount of intelligence manifested by the patient with that of her baby brother, who is two years younger and who knows them quite well, and whose eyes follow a train and animals at rest or in motion."

"She always passed her faces without giving notice, and during the last three months she has on several occasions eaten faces. When sleeping she cries out sometimes, and when awake she is often sitting up and the body swaying backward and forward. She has never had a 'proper cry,' but when she is restless the parents offer food, which is always taken. No preference for any particular kind of food has been noticed."

"On looking at the child, attention is arrested by the small head and relatively large face. The body generally is fat, but flabby. Measurements of the head gave the following results:

"Circumference at one inch above orbits in front, and occipital protuberance behind..... 17 inches.

"Antero-posterior diameter..... 6 "

"Diameter between parietal eminences..... 4½ "

"Diameter of skull at points one inch behind external angular process of frontal bones..... 3½ "

"Similar measurements were made of the head of a delicate girl of the same age who was in hospital, and in all there was an increase. There was a difference of one inch in what I may call the bifrontal diameter:

"Circumference..... 18½ inches.

"Antero-posterior diameter..... 6½ "

"Biparietal..... 5 "

"Bifrontal..... 4½ "

"The child could not walk, and could not stand erect without support. All the special sensations were blunted, and this was especially marked in the cases of sight and hearing."

"The reflexes—patellar, plantar, and pupillary—were apparently normal. The skin of the limbs, and especially of the legs, was cold relatively to that of the uncovered head, and was of a dull-red color."

"The girl was watched in hospital for four weeks, and during this time confirmation was obtained of the points to which I have referred."

"On 21st December the operation of linear craniotomy was per-

formed, with the assistance of Dr. Pringle. Chloroform having been administered, I made a curved incision six inches in length—the highest point of the convexity being near the median line—through the scalp upon the left side of the head. This incision extended to the pericranium. The flap thus marked out was raised from the skull. Two small arteries having been secured, a half-inch disc of bone was removed by means of a trephine at a point an inch and a quarter from the middle line, corresponding to the center of the skin incision (about midway between the anterior and posterior borders of the parietal bone). Into the hole thus made I introduced Keen's bone-cutting forceps, and by them [sic] I removed a strip of bone a third of an inch in width and extending from the trephine opening anteriorly and posteriorly for fully two inches, the portion removed corresponding to the skull from a little in front of the coronal suture to a point an inch above and an inch to the left of the external occipital protuberance. The pericranium was removed and subdural space was not opened. The flap of the scalp was then put in position and retained by a few silk worm-gut sutures, and the wound dressed in the ordinary way. The operation occupied thirty-five minutes."

"The after-history is very brief. The wound was dressed upon the 27th, and was found united by first intention. The highest temperature registered was 99°2° F., and there was little or no shock. On the 2d January she was removed to her home at Coatbridge, arrangements being made for her return in three weeks."

"The only change noticed since the operation was the increase in the temperature of the legs, and, on one occasion, the exercise of choice by the girl in the matter of food—she pushed away a cup of milk, but seized and ate a biscuit."

"On the 18th January I heard that the girl was keeping well and that some improvement could be noticed in her mental condition, but she could not be brought to hospital, as her sister had measles and she herself was sickening. On the 6th February her father wrote me that that she was better of the measles, but was very weak and took almost no food. He says, 'I am very sorry she has come home to get this backset, for I think she was getting on well before she took the measles.'"

"On the 7th February I went out to Coatbridge and found the girl in the languid condition common after measles, and heard that during the previous night she had got out of her crib and had aroused the father by going to his bed and putting her arms around him."

"On the 30th March I heard that the girl had recovered from her illness, and arrangements were made for her return to hospital, so that her condition could be noted."

"*Present Condition* (four months after operation).—In certain respects there is evident improvement. She can now walk without support, but with some uncertainty. The sensation of hearing is more acute, and she takes more notice of her surroundings. She can not talk, but she can indicate by sound that she wants food. It is less difficult to prevent soiling of bed linen by her excreta. She recognizes certain people, and will sometimes hold out her hand to me when I go near her bed. She still occasionally, when sitting in bed, swings the body backward and forward, but these rhythmic movements are not observed so frequently. She is quieter and much more easily managed."

"The bifrontal diameter is now four inches and an eighth instead of three inches and three quarters—an increase of three eighths of an inch."

"It is not my intention to deal to-night with the question of the relationship of the defective development of the brain to the early obliteration of fontanelles and of the sutures. There are those who, like Broca, regard the arrested developments and growth of the brain as the primary lesion, and the changes in the cranial bones as secondary; and others, as Virchow and Russell Reynolds, are of opinion that, owing to some defective nutrition, there is a premature obliteration of the cranial sutures, and, as a result of this, interference with the growth of the brain."

"If the former be correct, such an operation as I have described would be justifiable only to relieve pressure symptoms, such as perhaps the rhythmic involuntary movements of body or a portion of the body. If the latter—considering the life history of microcephalics, even when liv-

ing under special conditions, as in institutions, where we have living beings whom it is necessary to feed and clothe, who can not speak, and who are simply restless or unquiet if their appetites are not satisfied, and who thus live on unchanged—the operation of linear craniotomy might be performed with the object of lessening the pressure on the brain, giving the brain, as has been said, 'elbow room,' and allowing of its growth and development.

"Up to the present time the operation—or some operation by which portions of the cranial bones have been removed or divided—has been performed thirty-eight times, with four deaths. In two, death occurred within three hours after the operation, probably from shock; and in one, death occurred on the third day after operation with hyperpyrexia. It is yet too soon to speak positively as to the results of the operation in those who recovered. By the operation there is lessened one obstacle to brain development, and education, systematic and thorough, is necessary to bring about the slow development of mental power.

"In the case which I now show you no obvious increase, except in the bifrontal diameter, has occurred in the diameters of the skull. Such increase could not occur from removal of a strip from one side. It is my intention, however, at an early date, to remove a strip from the right side of the skull, and to connect the two furrows by removing a strip extending across the middle line from one to the other. There will then be a means of expansion laterally and from before backward. It was my intention to do this second operation at the end of last January, but the illness from measles has caused delay. I hope to have an opportunity of showing you the girl at some future meeting.

"[6th May, 1893.—The second operation was performed on 25th April, the wound was dressed five days later and was completely healed, and the child was sent home to-day.]"

Medical Men as Witnesses.—"A remarkable law concerning the examination of medical men as witnesses in negligence suits," says the *New York Sun* for July 14th, "went into effect in this State at the beginning of this month.

"It relates to the testimony of physicians or surgeons who are attached to any hospital, dispensary, or other charitable institution. Where such a man is required to testify in an action for the recovery of damages for personal injuries, in respect of information which he acquired in attending a patient at the particular institution to which he is attached, the new statute requires that the testimony shall be taken before a referee instead of being given in court before the judge and jury, as has always heretofore been the practice. However, the judge of the court in which the case is pending is empowered at any time, notwithstanding the fact that the deposition of the medical man was taken before a referee, to make an order requiring his examination upon the trial.

"The precise purpose of this change in legal procedure in reference to medical witnesses is not plain. Probably, however, the idea of the framer of the law was to relieve hospital surgeons and physicians from the burden of having to attend court at hours when it is inconvenient for them to leave their duties at these institutions. But it is to be noted that nothing is said in the statute about the place where the referee is to take the testimony, and it might well happen that it would be as difficult for a doctor to obey a summons to appear before a referee at his office as it would be to obey a similar summons to attend court.

"One objection to the new practice contemplated by this statute is that it will compel juries in many cases, so far as the evidence of doctors is concerned, to render their verdicts upon depositions which are read to them, instead of upon the oral testimony of witnesses given in open court. The appearance of a witness, his demeanor, and his manner of testifying, always afford the utmost aid to an intelligent jury in passing upon his credibility and the weight which ought to be given to his testimony; and it is a serious matter to withhold this aid, and to substitute evidence which is read by a lawyer from a written or printed document for the evidence of the witness given by his own word of mouth in the presence of the court. As has well been said by an eminent judge, 'all witnesses look alike in print.'

"We suppose it may be argued in support of this enactment, that physicians and surgeons ought not to be called away from important

cases where life is at stake, in order to dance attendance in the courts, oftentimes unnecessarily by reason of the repeated postponements of trials. No doubt there is force in this suggestion, but we think it will be found upon inquiry that our courts are very indulgent toward physicians whose engagements render it difficult for them to attend at any particular time, and that adjournments are often granted and testimony is frequently taken out of order so as to enable doctors to appear as witnesses without detriment to their practice.

"But, if it be true that medical men require the protection of such a statute, why is it confined in its operation to such of them only as are connected with hospitals, dispensaries, and charitable institutions? It would seem that these doctors are the very ones who could most easily obtain assistance and find others to take their places in case of an enforced attendance in court, while the private practitioner, who has no hospital work, might find it very difficult at short notice to procure the aid of another physician or surgeon to look after a critical case under his charge."

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Lectures and Addresses.

ADDRESS OF THE PRESIDENT

AT THE OPENING OF THE FIFTEENTH ANNUAL CONGRESS
OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION,

May 22, 1893.

By MORRIS J. ASCH, M. D.

FELLOWS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION: It is my duty first to thank you for the honor you have conferred upon me by electing me to the presidency of this association—an honor enhanced in value when I remember those who have preceded me in this chair; and, secondly, to bid you welcome once more to this city, where the American Laryngological Association held its first meeting on June 10, 1879; where, in October, 1873, the New York Laryngological Society was formed for the study of the larynx, pharynx, and adjacent parts—the first society formed for the purpose in any country, and from which our own association has been the natural outcome. Those of you here to-day who were present at that meeting will recall the enthusiasm of our first president, his words of counsel, and his prophecies of the future of laryngology. Were he here with us to-day, how more than satisfied would he be with the fulfillment of his hopes, reaching far beyond his most sanguine expectations! In his inaugural address he pleaded for the establishment of professorships of diseases of the throat, for the foundation of special hospitals, and for the addition of departments for the treatment of these diseases in hospitals already established. At the time he spoke there were in all this country but twenty-five teachers of the specialty; of these, but two taught laryngology exclusively; the other twenty-three combined their instruction with lectures on the diseases of the eye, ear, or chest. To-day laryngology is an intrinsic part of medical education, and the opportunities for its study, clinical and didactic, are universal. This result is largely due in this country to the industry, the genius, and the perseverance of Louis Elsberg, our first president, the pioneer of laryngology in America—its first professor here and the founder of the first clinic for diseases of the throat in the United States and perhaps in the world.

The literature of the specialty was so scanty and so scattered in 1879 that it was suggested that the association, as one of its functions, should prepare a digest of the progress of laryngology, compiled from the publications appertaining to it, and that this digest be supplied to the fellows and to outside subscribers. To-day not only are the special journals in excess of the need, but almost every medical journal, besides publishing articles by laryngologists on laryngology and rhinology, has its report on the progress of the specialty. It must be a source of gratification to the older members to witness the change. The younger specialist of to-day can scarcely appreciate how different are the conditions to-day. He can scarcely believe that, even so lately as the first meeting of this association, the laryngologist was looked upon by the older gen-

eration of medical men with a certain amount of distrust. The laryngoscope was considered a sort of physiological plaything, and I well remember the amused incredulity shown by one of our prominent medical men when he was told that tubercular laryngitis could be diagnosed by it prior to any pulmonary manifestations. That to-day the study of these diseases is universal, and knowledge of the laryngoscope part of the training of every American physician, is, I sincerely believe, due in this country to the influence of the members of this association, who have conscientiously upheld its importance and have given it dignity by the conscientiousness of their work and the value of their researches.

At the time the association was formed it was the belief of some of its founders that its members should be drawn only from those who directed themselves wholly to the study and practice of the specialty, but it was not meant that the laryngologist should be only a laryngologist, or that the specialist should be dissociated from general medical science; no one knew better than these men that to be a good laryngologist it was necessary to be thoroughly trained in every department of medicine, and that not theoretically, but practically; but it was deemed wisest, in the inception of the association, that its majority should be composed of those who were prominent in the specialty, and thereby give it importance in the eyes of the rest of the medical world. For myself, I am fully in accord with the advice of Mackenzie to the younger members of the British Laryngological Society that, while devoting themselves to their specialty, they should continue to practice general medicine and surgery during the first ten years of their career. In his inaugural address at their first meeting in 1888 he says: "It is impossible that a man can be a really good specialist without possessing a general knowledge of disease, and when I say general knowledge I do not mean such a knowledge as can be obtained in a student's career, or even such as can be acquired by the holding of minor appointments at the termination of a hospital curriculum; what I consider requisite is such a familiarity with morbid processes as can only be acquired by those who are in the habit of using all the resources of their art in combating the great varieties of ills which flesh is heir to. In my opinion, only those who have acted as general practitioners for some years, or have held appointments as physicians or surgeons to general hospitals, are thoroughly equipped for practicing as specialists. It is only after thorough knowledge has been obtained in many departments of medicine that training and experience can be focused with advantage on a single point" (Presidential Address delivered at the first meeting of the British Laryngological Society, November 14, 1888).

These words of the great master are most true, and I commend them to you when you are called on to advise a young graduate in his selection of a career.

Much that was pointed out at our first meeting as being needed has been accomplished. The plea for systematic teaching has been heard, and in all the post-graduate schools and in the medical colleges of this country laryn-

gology finds itself the equal of any of our sister specialties. Am I claiming too much for this association when I say that to the men who formed it fourteen years ago this result is largely due? The advance in our knowledge of the pathology and therapeutics of diseases of the throat and nose since that time is known to you all. Very crude, comparatively, were the appliances and methods of that time. The galvano-cautery was an uncertain agent. How many of us beginning an operation with it had to complete it by some other procedure? The electric light was a thing unknown, and the application of the electric motor to nasal surgery had not been foreshadowed. Laryngeal tuberculosis was an incurable disease. Krause and Heryng had not yet given the results of their labors to the world, and the removal of the larynx was an operation that made the boldest of us shudder. Our armamentarium was limited in comparison with the instruments we now possess: a Mackenzie's lamp and reflector; laryngeal and pharyngeal mirrors; a set of forceps—Mackenzie, or some other pattern; Schrötter's tubes; Storck's guillotine, some brushes, and applicators; a powder blower, with a number of extraordinary instruments, usually the invention of the specialist himself—and utterly useless in the hands of any one else—constituted our working capital. What we possess to-day of appliances and instruments I need not detail to you. Every day brings forth something new, either in the form of an instrument, some new pathological fact, or some method of relief or cure. That all of these will prove to be valuable I do not assume, but out of the vast mass which is being heaped up by the faithful workers something will surely be extracted that will bring honor to its author and relief to mankind. The study of the physiology and diseases of the anterior and posterior nasal passages and their accessory cavities has given us most valuable results, and so closely has their relation been traced to diseases of the ear that now the treatment of these last diseases is coming within the domain of the laryngologist. The ophthalmologist invokes his aid also in diagnosing and treating the catarrhal affections of the eye. To one of our own fellows, too early called away from the theater of his labors, Dr. Hooper, of Boston, a great part of this is due.

If, then, in fourteen years so great an advance has been made, it is not too much to expect that in the near future the value of our work will be increased, and the result of the labors of this association will give added knowledge to the world in every branch of our specialty. I speak advisedly when I say the labors of this association, for I believe that most valuable work is being done by it, and the incentive of our annual meeting elicits in its papers the results of faithful observation and laborious research, while their discussion is sure to bring forth opinions and facts from the members which their large clinical experience renders most valuable.

It is a matter of congratulation that our association is so largely composed of those who, by their position as teachers or at the head of extensive clinics, are so thoroughly competent to pass judgment. While, then, we look forward with anticipation to the work yet to be done, and

encourage the ardor of those who, zealous in their task and prominent by their success, are still foremost in the pursuit of knowledge, we must also halt to mourn the loss of one who has fallen by the way, in the vigor of youth and in all the glory of his intellect. Such a loss has befallen us in the death of our late associate, Dr. Franklin H. Hooper. Although still young, he had made his mark as a faithful and able investigator. Thoroughly trained in the laboratory of Harvard, he brought to his work, with the capacity developed by a thorough education, the desire to utilize to the fullest degree the advantages he enjoyed. When we were last year in Boston his absence from our gathering was a disappointment to us all, for all missed the eloquent learning which would have illuminated our discussions, the zeal with which he would have defended his opinions, and the gentle courtesy which would have added grace to our social intermissions. His scientific work is known to all here. His labor in demonstrating the relation of adenoid hypertrophy to ear diseases was at once appreciated by the medical profession, and was the means of bringing into general notice the operation for its removal which has since become so universal. Such a void as the death of Dr. Hooper causes is difficult to fill; and it is fitting that at this meeting, the first held by the association since his death, it should cause to be placed in its *Transactions* its appreciation of his merits and its sincere regret at his early demise.

At its present meeting the association will be called upon to take action on certain amendments to the Constitution and By-laws, of which notice has been given by the secretary, and it will also decide in what manner it will utilize the time allotted to it at the coming Congress of American Physicians and Surgeons at Washington in 1894. It has been decided by the executive committee of this body that an hour and a half of each session shall at its next meeting be occupied by one of the participating organizations, and that each society selected to perform this duty shall prepare its own programme for the period assigned to it by the committee, and select its own speakers. You will decide in what way this time shall be occupied: whether by the reading of papers or by a discussion on some question of interest to the general profession as well as to the specialist; and you will also indicate whom you elect to represent you on this occasion.

Now, gentlemen, as the time of our session is limited, and as there are several papers of interest on the programme for to-day, I will not detain you longer, but bid you Good-speed in your work. Knowing what we have already accomplished, I confidently trust to the members of this body to continue their labors for the advancement of our specialty in the future as faithfully as in the past. As teachers, as workers in the difficult path we have chosen, and as worthy upholders of the dignity of our task, each and every one of you will reflect credit on the profession. It is with no desire to magnify the importance of this association if I say that to its labors I believe is largely due the practical advancement that has been made in late years in the treatment of diseases of the throat and nose. That it will continue to do so in the future I sincerely trust. The

older fellows have nearly fulfilled their allotted tasks; on the younger members will devolve the honor of continuing the good work that has been begun, and we know that our standard will be borne right manfully.

If I might be permitted to give a word of counsel in the capacity in which I stand before you to-day, I would urge the importance not only of studying but of teaching our art. There is no incentive to acquire knowledge equal to that of imparting it. It will keep you in the front rank, for to disseminate it is necessary to possess, and one must always be abreast of the progress of the day in order to honestly satisfy the requirements of the student. An Eastern sage once said: "Much have I learned from my teachers, more from myself, and most of all from my scholars." Take the lesson to yourselves, and in its fulfillment you will find the reward of your work.

Original Communications.

THE TREATMENT OF GRANULATING WOUNDS.*

By W. W. VAN ARSDALE, M. D.,

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The great advances made in the methods of treating and dressing wounds within the last few years have consisted chiefly in substituting more and more (as our technique improved) aseptic for antiseptic surgery.

To the reader of the literature on wound dressings and on the management of wounds a tendency becomes manifest on the part of the authors to interfere with the normal process of repair as little as possible, and this as a direct result of biological methods of investigation.

These advances, however, almost all pertain to the treatment of primary wounds—that is to say, to fresh surgical wounds intended for primary union, which naturally absorb most of the interest of the surgeon. Indeed, the results which we witness in primary operations are so gratifying in certain cases that we do not hesitate to accept the methods advocated in our literature and very generally in use as fully adequate for our present purposes. And although we may continue to improve in our technique, the improvement will probably be more in the direction of uniform success and in combating those general systemic conditions more removed from the field of operation (although influencing the behavior of the wounds none the less on that account), and amenable to treatment by methods other than purely surgical.

But if in many of our hospitals we see beautiful results after primary operations, where the wound could be closed and left unmolested, we also see, principally in our dispensaries and in general practice, a number of wounds which must of necessity heal by secondary intention, and

in contemplating these we can not but feel that their management might be improved.

In the more recent literature these granulating wounds appear comparatively neglected, although the subject is certainly an important one on account of the frequency with which these wounds are encountered in daily practice.

I do not at present refer to such injuries as certain scalp wounds which, although originally contused wounds, can be readily transformed into clean-cut wounds and healed by primary intention. But I refer mainly to those contused and lacerated wounds where death of the tissues, more or less extensive, takes place in consequence of the primary injury and which therefore heal of necessity by granulation.

It is my lot to have referred to me for treatment a number of patients suffering from granulating wounds who have previously been under treatment by others either at their homes or at clinics and dispensaries.

From observation of such cases, I find that it is a very general practice to treat granulating wounds in much the same manner as primarily aseptic ones are treated. The most frequent dressing met with consists of iodoformized gauze placed directly over the wound, with more or less absorbent gauze or cotton, or both, over this, held in place by a bandage. The idea underlying this proceeding is to keep the wound dry, and by inspissating the secretions to prevent their becoming putrid.

As a consequence, however, of this dressing, and *whether the wound when first seen was put through a course of antiseptic cleansing or not*, we very frequently find conditions of inflammation present in these wounds due to the accumulation of the secretions on the wound and in the surrounding tissues—conditions for which we may use the familiar term retention, and which disappear with the establishment of free drainage.

These wounds appear reddened and swollen at the edges, the surrounding tissue presents a phlegmonous infiltration, there is much local pain, especially on pressure, and the patient is somewhat feverish and ill at ease.

I am well aware that it is very generally maintained that by thoroughly disinfecting these wounds which are expected to heal by granulation, we can get them to heal without any appreciable amount of secretion or suppuration, and it was thought for a time that these wounds could actually be rendered free from micro-organisms.

We know, however, from bacteriological investigations by Bosowski, Ghrisky and Robb, Lang and Flach, and others that even in our primary wounds, treated either by the antiseptic or the aseptic methods, numerous micro-organisms are always to be found. It is therefore not probable that we can hope to render and maintain our granulating wounds entirely free from micro-organisms.

If we do meet with granulating wounds, however, which show no perceptible amount of secretion, we encounter a further disadvantage of the dry iodoformized dressings, in that the gauze sticks tightly to the wound and can not be removed without lacerating the granulations.

The method most commonly used to prevent retention

* Read before the Section in General Surgery of the New York Academy of Medicine, June 12, 1893.

in granulating wounds consists in dampening the dressing with some aqueous solution and covering it over with a layer of protective impermeable to air. This is what I shall here term the moist dressing. It is in general use for certain infected and sloughing wounds, where it certainly renders excellent service.

From time to time, however, articles appear in our literature recommending the use of moist dressings for all wounds, and especially for granulating or partly sutured wounds (Weber).

The advantages alleged for these dressings are the following: There can be no retention of secretions under them, since drainage is always complete; consequently depletion of the tissues ensues, and with it increased circulation and more rapid repair. There is no pain, because there is no tension. There is no elevation of the bodily temperature from absorption. Moreover, they can be quickly and painlessly removed. But those who have tried the extensive use of moist dressings are not all satisfied with them, at least not for general use.

These dressings, by keeping the surface of the wound always warm and moist, act as poultices, and increase the secretions from the wound inordinately. The granulations are apt to become exuberant, and this retards the healing of the wound. The aqueous solutions very frequently cause annoying eczematous conditions of the skin in the environment of the wound, especially in the poorer classes, or when sublimate solutions are used. Acute oedema with exfoliation of the epidermis is of common occurrence, and not infrequently we meet with a painful acute oedema of the areolar tissue beneath the skin.

The proliferation of all kinds of bacteria in these moist dressings soon renders them putrid; and especially in the sublimate dressings where the sublimate is rendered inert by the action of the albumin in the secretions (formation of albuminate of mercury insoluble in water). Therefore frequent change of dressings is necessary. The natural transpiration of the skin surrounding the wounds is somewhat interfered with by the use of the rubber tissue. If there is any sloughing, this process is much more extensive than it would be if the wound were kept dry, and the scar forming after these wounds have healed is consequently dense and distorting and oftentimes painful. Finally, the chemical antiseptic substances used in these dressings irritate the wounds and make them appear inflamed—so much so that almost all wounds which we see in these antiseptic days are actually irritated wounds.

Of late, and especially since the appearance of Dr. Halsted's admirable paper on the treatment of wounds, many granulating wounds are dressed in this city in a manner somewhat similar to that advocated by Schede for healing wounds under the moist blood-clot.

Over the wound, disinfected if necessary, is placed a small piece of gutta-percha tissue, over which absorbent material is held in place by a bandage.

Of those wounds so dressed by others which have happened to come under my observation, as well as those which I have myself treated in this manner, the majority have been far from satisfactory.

However small the piece of tissue was cut to cover the wound, the wound has always presented reddened and swollen edges, been painful to the touch, and had a macerated appearance. The granulations have been exuberant and oedematous and the term required for healing has been prolonged.

In short, this method partakes of many of the drawbacks of the moist dressings, without the advantage possessed by them of perfectly free drainage.

Some years ago, in 1884, while studying the various dressings for granulating wounds in the hospital, I used, among others, oily dressings.

Carbolic oil does not recommend itself to our use, since it possesses all the disadvantages of a carbolized dressing, and it is not aseptic.

The oil that showed the best results was a pure olive oil in which balsam of Peru was dissolved. (This combination, I believe, is still in use for certain cases in some hospitals.)

It had disadvantages, however. It was comparatively a thin fluid, dispersing readily over the surfaces and dressings, and could not be well confined to the wound itself; it appeared to become rancid or undergo a change on standing. It would not take up more than one and a half per cent. of the balsam.

I therefore looked about for some other oil which should combine all the desirable qualities of a dressing for granulating wounds without these drawbacks. And this I found in castor oil.

This oil, being soluble in alcohol, will take up large quantities—fifty per cent. and more—of the balsam of Peru.

It is viscid enough to remain for any length of time in direct contact with the wound, and will remain on those portions of the dressing on which it is originally spread.

It does not, however (if properly applied), prevent the absorbent gauze dressings from taking up blood or secretions from the wound, and does not therefore interfere with drainage. The oily solution saturates the fibers of the gauze, while the aqueous fluids are drawn into the interstices. While, therefore, the wound itself remains moistened by the oil and balsam, it is nevertheless drained of its aqueous moisture.

However much a granulating wound may discharge, it always appears dry and clean when this oily dressing is removed, provided sufficient absorbent material was applied with the dressing, which is an important point.

The oil does not appear to turn rancid when mixed with the balsam of Peru. The mixture will keep any length of time. Bacteriological examinations of the mixture are not, however, complete at this date.

The balsam of Peru is known to be a reliable antiseptic, and is of good service in dressing certain wounds, but it is too irritating to the wounds for general use when used pure, besides being somewhat expensive.

Inoculations made for me from various specimens of Peruvian balsam on agar soils at the New York Polyclinic laboratory failed to produce any cultures of micro-organisms.

As to the castor oil: this can be heated to any degree

deemed necessary; but this must be done previously to the admixture of the balsam. Since this oil comes to us directly from the manufacturers, I have not considered it necessary to subject it to further procedures for sterilizing it, and especially as our knowledge of the sterilization of oils is still somewhat incomplete. To sterilize oil it is necessary to subject it to a temperature of 160° C. for at least two hours. It appears probable, however, that in the balsam solution we have a mild antiseptic mixture, but not one exerting an active antiseptic action on the wounds.

For general use I prefer a four-per-cent. or five-per-cent. solution of the balsam in the oil; but a ten-per-cent. solution occasionally does good service. It is of great importance to use only the best qualities of both the ingredients, as otherwise the product will not be satisfactory. The solution should have a rich, dark-brown color, and be perfectly clear.

No systemic effect of the oil is to be expected, since castor oil does not exhibit any acrid qualities until acted upon by digestive ferments.

I am not aware that this mixture has been used extensively for dressing wounds, although I have myself recommended it in lectures and dispensary instruction very widely and for a number of years.

The method of application of this solution as a dressing is very simple. A bunch of plain or sterilized absorbent gauze is spread with this solution over an area somewhat larger than the wound to be dressed. This is most readily accomplished by the use of a large brush dipped in the solution. The amount applied is graduated according to the size of the dressing and the period during which the dressing is to remain in place. Generally speaking, it is sufficient to have the solution permeate the first four or six layers of gauze. The gauze is now simply laid on the wound, so that the oil comes in contact with it; then a protective layer of rubber tissue or oiled paper is spread over all, and then the bandage applied. I have used this simple dressing in many thousands of cases during the last six years, and have found it very satisfactory for all sorts of granulating wounds, especially contused and lacerated wounds of every description, as well as for burns, furuncles, incised abscesses, etc.

In many cases of sutured wounds it has done excellent service, and it has not interfered in any way with primary union when no infection was present.

For certain cases, however, modifications of this simple dressing are advisable.

In the first place, any of the antiseptic or astringent powders can be first dusted lightly on the wound; the oily dressing over these will prevent the powder forming an eschar or crust, causing retention in the wound. For this purpose I have come to prefer the subiodide of bismuth, although any other powder—iodoform, dermatol, etc.—may be used.

Again, antiseptic gauze may be used instead of the sterilized gauze—and here I have found the dry pyocetanin gauze advantageous. The oily solution does not dissolve the coloring matter, and therefore this is a comparatively clean dressing. If there is much secretion of pus, more

over, the aniline dye is bleached, while the secretions are disinfected. Iodoformized gauze, however, can not be used to good advantage with the balsam oil, because the glycerin in this gauze does not harmonize with the oil.

Iodoform powder, however, may be added to the solution in quantities of two or three per cent., and it will be dissolved and rendered inodorous. (Oleum balsami peruviani ricinatum compositum: Balsam. peru., gr. xx.; iodoformi, gr. x.; olei ricini, ʒj.) The advantages of this method of dressing wounds, then, are the following:

The secretions from the wound are immediately taken up by the absorbent gauze, and thus drainage is established in the tissues surrounding the wound; by removing the secretions from the vicinity of the wound the occurrence of eczematous conditions is prevented.

The formation of epithelium over granulating surfaces progresses more quickly and easily than under any other kind of dressing.

The granulations do not adhere to the dressing, hence the change of dressings is painless and very quickly effected without hemorrhage, and consequently with little danger of reinfecting the wound.

The dressings need not be changed often, twice a week generally sufficing on the average. The wound itself is kept comparatively dry, which checks the proliferation of micro-organisms and the formation of ptomaines in the immediate vicinity of the wound. There is no absorption of the ptomaines, because the secretions on the wound are not under pressure. There is no elevated temperature, as in our dry dressings, on account of the free drainage. There is no irritation of the wound, as is the case in all antiseptic dressings.

On the other hand, however, this dressing is no protection against erysipelas infection of the wound, as the moist sublimate dressing probably is. In this it resembles the iodoformized and bismuth dressings. Furthermore, it is not a proper dressing for eczema or eczematous ulceration, since it does not partake of the character of an ointment.

The dressing does not actively prevent suppuration; it simply drains the wounds and keeps them in a clean condition. And in this it closely resembles our purely aseptic dressings on operative wounds.

We know that wounds made and treated under the aseptic régime (in contradistinction to the antiseptic practice) actually contain larger numbers of micro-organisms than the antiseptically treated wounds do. And yet, notwithstanding this fact, the aseptic wounds give better results. This was proved by Tavel, whose work corroborates that of Welch. Accepting it as a fact that there are micro-organisms present in granulating wounds as well as in the aseptic ones, and pyogenic ones in addition in all cases of suppuration, it is contended that these granulating wounds do better under the oily dressing, by virtue of its better drainage, than they do under antiseptic dressings, which exert an irritative action upon the wound surface.

Since the pathology of the repair of granulating wounds does not essentially differ from that of so-called primary wounds, the difference being more a quantitative than a qualitative one, we may think of using this dressing on

sutured fresh wounds where we expect primary union. In several smaller operations of this kind I have used it with success, it acting very much in the same manner as a simple aseptic dressing. But besides the possible prospect of allowing us to do away with the aseptic fever—which is, in a certain degree, a sort of retention (although a retention of non-septic products)—it offers no advantages over the methods in use at present.

I desire at the present time to recommend the dressing principally for all sorts of granulating wounds as a bland dressing which shall favor epithelial growth and insure drainage without irritation.

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TUBO-OVARIOTOMY

AT THE SIXTH MONTH OF PREGNANCY.

RECOVERY.

By D. L. PEEPLES, M.D.,

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LUCY S., aged thirty-eight years, the mother of seven children—the last of which was born in September, 1890, about three months after the operation, the history of which is here-with detailed—called to consult me concerning scanty menstruation and a perceptible and continual abdominal enlargement, with pain from time to time, which gradually increased in severity.

The patient stated that she had first observed a slight irregularity of the catamenial periods about two years previously, accompanied occasionally with uneasiness, and finally pain became intensified. A year later irregularity continued, and the menses were accompanied by a disagreeable mucous discharge. At this time the abdomen was considerably enlarged and a hard substance could be detected on introducing the index finger a few inches into the vagina. Neither the patient nor myself entertained any idea of pregnancy. Owing to the severity of the pain, the patient could not attend to her household duties and copulation was prohibited because of the excruciating pain attending it. The mucous discharge somewhat resembled scanty menstruation, although at times it became hæmorrhagic in character.

An examination revealed an ovarian fibroma, and, as the general health of the patient was good, I advised immediate

surgical interference, to which suggestion she readily consented, and after a preliminary course of treatment, in which agents calculated to promote natural action of the excretory organs were used, the operation was done on June 5th, the strictest antiseptic precautions being employed. Anæsthesia having been secured, the abdomen was thoroughly cleansed and washed with a 1-to-2,000 bichloride solution, followed by sulphuric ether.

An incision was made about two inches to the right of the median line, commencing an inch and a half above the symphysis pubis, and carried upward eight inches. It was noticeably surprising to find so thin an abdominal wall as lay over the most prominent portion of the tumor; for not only was the peritonæum exposed, but even before I thought I had reached it it had been divided and I had actually cut into the tumor. Bleeding and capillary oozing were very extensive, notwithstanding the constant use of sponges, the application of catgut ligatures, and the employment of torsion. Upon entering the abdominal cavity I discovered almost unlimited adhesions to the intestines and also a strong attachment to the right anterior superior spinous process of the ilium by a kind of elastic, fibro-cartilaginous substance, which was also attached at about the middle of the crest of the ilium. Both of these attachments were separated by carefully dissecting them away, and the adhesions were gradually and gently ruptured by digital manipulation.

The tumor, which was one of the most vascular I ever saw, was elevated as far as possible and the pedicle ligated in close proximity to the uterus. After removal, and being drained of blood and serum, the tumor weighed four pounds and a half.

The cavity was carefully cleansed with sterilized hot water packs to arrest capillary oozing, and I concluded to risk sponging the bleeding surfaces with a 1-to-3,000 bichloride solution, which were then dusted with iodoform. I was much confused by the still enormous size of the uterus, and my assistants agreed with me in the opinion that there was another tumor *in utero*. As I had not the courage, however, to attempt its removal, the question was left for future consideration. After waiting a few minutes to assure myself that capillary oozing had ceased, the wound was closed without drainage, approximation of the surfaces being secured by deep and superficial sutures, the peritonæum being sutured in conjunction with the abdominal wall. The wound was dusted with iodoform, a strip of bichloride gauze laid on it lengthwise, and over it pads of absorbent cotton, the whole being held in place and the abdominal wall supported by broad strips of adhesive plaster applied crosswise.

The patient having come out of the anæsthesia, morphine and atropine were given hypodermically, and quinine and whisky were administered internally, and she was allowed to rest. Four hours later she was given ten grains of quinine, an ounce of whisky, and ten minims of deodorized tincture of opium, and this treatment was continued with but little variation for eight days, the opiate being occasionally increased as the case demanded. The patient slept during the greater part of this period, being aroused only for the administration of medicine, and food was not given until the eighth day. There was no movement of the bowels for seven or eight days; no vomiting of any consequence; no tympanites; the fever was of a slight character; and there were no indications for drainage.

Stitches were removed from time to time according to the exigency of the case; there was no suppuration externally, and the wound healed beautifully and almost entirely by adhesion. Dressings were made as often as requisite. The bowels were moved by drachm doses of sodium and potassium tartrate given every few hours, and by carefully administered enemata of warm,

soap-water. After the first movement of the bowels they were kept in a lax state, and the quantity of opium was diminished from day to day until it was discontinued. The administration of quinine was finally reduced to three times a day during the last part of the second week, the quantity of whisky was gradually diminished, and its place supplied with soups, broths, etc. The patient began to sit up in two weeks, and walked during the fifth week after operation. In two months she was sufficiently recovered to return to her household duties. In September, 1890, about three months after the removal of the tumor, she gave birth to a stout and robust child, the labor being unaccompanied by any unusual trouble. Soon after confinement she returned to her former work and has since been in perfect health.

I was very ably assisted during the operation by Dr. J. P. Burnett and the late Dr. Harris.

THE DIAGNOSIS OF ENTERIC FEVER.*

By GUSTAVUS ELIOT, A. M., M. D.,

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RECENT advances† in the treatment of enteric or, as it is more commonly called, typhoid fever give to the diagnosis of the disease increased importance. Medical writers and teachers have generally declared that it is difficult to make the diagnosis of enteric fever until the course of the disease has been watched for five or ten days. Hutchinson says that the diagnosis is always difficult and sometimes impossible during the first week (Pepper's *System of Medicine*, vol. i, p. 311). Practitioners have generally been contented to wait for ten or fifteen or even more days before deciding upon the nature of the complaint from which their unfortunate patient has been suffering. The sick man, of course, has been anxious all the time to know the name of his ailment, and has been deluded by being told that he had some other less serious disease. If at length the physician has become convinced that his patient really has enteric fever, he has calmly declared to the sick man or his friends that the disease has run into typhoid fever.

In many cases, unquestionably, the patient has passed through the course of typhoid fever, and has recovered or died without the physician in attendance having ever learned or declared the true nature of the disease. On the other hand, many patients have died, and their friends have been told that the cause of death was typhoid fever, when in reality the patients did not have that disease, but died of some other entirely different disorder.

The object of this dissertation is to inquire if the early diagnosis of typhoid fever is as difficult as it has been represented to be; what symptoms are most characteristic of it; what diseases it is liable to be mistaken for, as well as what diseases are liable to be mistaken for it; and how it can be distinguished from these other diseases.

The symptoms upon which we have been taught to rely in making a diagnosis of enteric fever are the course of the temperature, the diarrhœa, the character of the diarrhœal

discharges, tenderness and gurgling in the right iliac region, tympanites, and the eruption.

Those which are generally described as most characteristic of the disease are the course of the temperature and the eruption.

Wonderlich, to whom the profession owes such an incalculable debt for popularizing clinical thermometry, in attempting to prove the great usefulness of the thermometer in enteric fever hit wide of the mark. He did not exaggerate in the slightest degree the importance of the thermometer as a guide to the diagnosis and treatment of the disease; but he believed, and distinctly taught, that this instrument furnishes important indications with regard to the diagnosis of the disease, which, I am sure, the experience of each one of you has shown to be fallacious. The schematic diagram, representing the course of the temperature in an imaginary case of enteric fever, which he devised, and which has been reproduced in such recent works as Wilson's *Treatise on the Continued Fevers* (opposite page 156), and Hutchinson's article on Typhoid Fever in Pepper's *System of Medicine* (vol. i, p. 282), has done more than any other one thing to retard the progress of exact knowledge of the disease. His attempt to render our knowledge more exact in this instance has really resulted in making it more inexact.

Experience has proved that, even when the course of the disease is not modified at all by treatment, the temperature does not, as a rule, follow the course of daily morning remissions and gradually increasing evening exacerbations during its first week, which he believed to be typical of the disease. Still less does it do this when, as is usually the case, the course of the fever is more or less modified by powerful therapeutic agents. This peculiar course of the temperature, moreover, even in the exceptional cases in which it is observed, does not become available as an aid to diagnosis until after the patient has been under observation for several days.

The eruption, the value of which is so highly esteemed by many teachers as an aid to diagnosis, does not, as a rule, appear until five or six days have elapsed.

These two diagnostic factors, the course of the temperature and the eruption, not being available as aids to diagnosis—the one until the patient has been under observation for several days, the other until he has been ill for a number of days—it is not strange that the notion has become prevalent that an early diagnosis of the disease is generally difficult and sometimes impossible.

Diarrhœa is not a very reliable symptom upon which to base a diagnosis, because in most cases the patient has taken more or less laxative or cathartic medicine before sending for a physician. On the other hand, in a considerable proportion of cases, especially mild ones, diarrhœa never occurs.

Iliac gurgling is a common phenomenon, and not at all peculiar to enteric fever.

Iliac tenderness, on the other hand, may be very slight, or may be absent altogether.

It is clear, therefore, that it is difficult to make the diagnosis of enteric fever if one relies upon the symptoms which are generally described as of most importance.

* Read at the one hundred and first annual meeting of the Connecticut Medical Society, May 25, 1893.

† See the *New York Medical Journal*, Aug. 6, 1892, vol. lvi, No. 6.

But aside from the intrinsic difficulty of solving some of these diagnostic riddles, it must never be forgotten that one reason why an early correct diagnosis is made so infrequently is because practitioners forget the possibility of the existence of enteric fever. The disease is one which, it seems almost superfluous to remind you, commences, as a rule, very insidiously. I once saw a young woman taken with a severe epileptiform convulsion who a few hours later had a temperature of 104°. Careful inquiry failed to elicit any previous symptom of ill health. She died after a few days, and on post mortem examination the extensive ulceration of Peyer's patches with enlargement of the mesenteric glands left no doubt in any one's mind that she died of enteric fever.

Such cases are, however, very exceptional. Generally the patient has been feeling indisposed for several days, and perhaps has taken a few doses of some domestic or popular remedy. He may then present himself in the physician's office, and remark in an offhand way, as he enters the consulting room: "I am having a little malaria, and I want you to fix me up so that I will not have to stop work, for I am very busy just now." It happens not infrequently, it is painful to confess, that the physician falls into the trap thus unintentionally set for him, and, without making a thorough examination of his patient, forgetting the possibility of the existence of a more serious disease, declares with easy grace that the case is one of malaria or biliousness—terms used by successive generations of practitioners as a cloak beneath which to hide their careless observations and their pathological ignorance.

If, now, such a patient is really suffering from typhoid fever, as proved by the subsequent development of the symptoms, even if the disease is still in its early stages, careful inquiry will, in nearly every case, reveal the presence of a group of symptoms which, taken together, point very strongly to the existence of that disease, and in many cases warrant one in making a positive diagnosis the first time the patient is seen.

The great trouble is that many physicians do not seem to consider the possibility of the patient's having typhoid fever until he has had successive intestinal hæmorrhages, or his hair has commenced to drop out. It is my firm conviction that every careful practitioner who treats a case of typhoid fever ought at least to have suspected the existence of that disease the very first time he sees the patient, and that not to have considered the possibility of the presence of that disease is an evidence of carelessness closely bordering on criminality.

Let me repeat again that the reason why so many men fail to make an early diagnosis of typhoid fever is not that it is a difficult thing to do, but because they neglect to consider the possible presence of that disease.

Generally, the first, and by far the most common, symptom of which patients in the early stage of typhoid fever complain is headache. When the physician is first consulted, the headache, having come on rather gradually, has generally lasted several days, and has been almost constant. It may have been of either moderate or great severity. This gradual, insidious onset of the symptoms has

given rise to the statement in the text-books that it is generally impossible to fix definitely the beginning of the disease. My experience has taught me that this teaching is erroneous. Although at first the patient declares that he has been sick several days or about a week, it generally is perfectly possible, if he is moderately intelligent and is seen fairly early in the course of the disease, by careful inquiry, to fix upon one particular day on which he began to suffer from headache and perhaps also from chilly sensations, and before which he was in his usual health. Whenever a patient complains of headache which has lasted several days, the physician should always satisfy himself that the patient has not typhoid fever before concluding his examination.

No one ought ever to prescribe for a patient without inquiring in regard to the existence of headache. Consequently, unless headache is really absent in any particular case, and it very rarely is, there is no excuse for overlooking the possibility of the existence of enteric fever.

If this symptom is present, the next thing to do is to count the pulse. This will generally be found to be accelerated. I do not recollect that I have ever seen a patient at the commencement of enteric fever who had a pulse of 72 or lower. If protracted headache and acceleration of pulse are both present, one must next take the temperature. This should never be omitted in any case where there is headache and accelerated pulse.

If there is elevation of temperature and acceleration of pulse with headache which has lasted several days, the probability that the patient has enteric fever is very strong.

Inquire next if he has had chilly feelings—which I remember to have heard the late Dr. Alonzo Clark, of New York, call diluted chills—not repeated at regular intervals on successive days, but occurring frequently and irregularly for several days. These are very different from the chills which occur in the course of malarial affections, and are strong corroborative evidence of the existence of enteric fever.

Nosebleed is an occasional early symptom. Its presence is confirmatory evidence, but its absence is so common that little significance can be attached to the fact that it has not been noticed.

If no laxative or cathartic has been taken and there is diarrhœa, the movements being soft in consistence and of a yellowish color, we have additional evidence that the disease is typhoid fever. If cathartics have been taken, the diagnostic value of the symptom—looseness of the bowels—is greatly lessened. On the other hand, even when enteric fever exists, it frequently happens that there is no diarrhœa.

These half dozen symptoms are the early symptoms of greatest diagnostic importance.

To make the argument complete let us look for a moment at the other side. If the patient who is sick has not had headache there is very little probability that he has enteric fever. If his pulse is 72 or less, one would seldom be mistaken in declaring that the disease is not typhoid fever. Similarly, if the temperature—no antipyretic measure having been adopted—is below 99° F., one would

hardly be justified in thinking that his patient has enteric fever.

In the absence of all of these symptoms—namely, headache, quickened pulse, and elevated temperature—one need not hesitate to assure a patient that he has not enteric fever.

If, on the other hand, these are present, the probability is considerable that the disease is enteric fever, and this probability is increased if there is obtained a history of chilly sensations frequently repeated for several days, of repeated epistaxis, and of diarrhœa. Iliac gurgling and tenderness are also corroborative symptoms, which should always be looked for, and, if present, strengthen the diagnosis.

Turning now to still another side of this subject, the question is naturally suggested, What diseases are likely to be and what actually are mistaken for typhoid fever, and under what circumstances is an erroneous diagnosis of typhoid fever made?

When typhoid fever really exists, but is not correctly diagnosed, it is in this vicinity most frequently called malarial fever and at a later stage typho-malarial fever. This mistake generally depends upon a mixture of ignorance and carelessness. I do not care to attempt to maintain at the present time that typho-malarial fever never occurs. I presume that every one is aware that this term should, however, be strictly limited to cases of disease which are due to the simultaneous action of the typhoid and of the malarial poison. It is my firm conviction that most cases of so-called typho-malarial fever are in reality cases of typhoid fever. If a malarial element is present in some of them it is possible to remove it promptly by appropriate treatment. With regard to cases of so-called malarial fever it should be remembered that most fevers which are caused by malarial poison are of a distinctly intermittent or remittent type. If, therefore, a case of continuous fever occurs, which is uninfluenced by adequate doses of the ordinarily used antiperiodics, there is good reason for challenging the diagnostic accuracy of any one who pronounces such a case malarial fever. In most cases of this kind the disease is enteric fever. Bilious fever is another term which is still occasionally heard, chiefly among men whose acquaintance with medical literature has not extended to publications of recent years. I believe that it is generally recognized by practitioners who are familiar with modern medical literature that there is no pathological or clinical foundation for recognizing any form of disease as a distinct entity under this name.

The vital statistics of our city and State show a number of deaths reported as due to malarial and typho-malarial fevers which is almost equal to the mortality reported from typhoid fever. There is little doubt that the majority of these reported cases represent mistakes in diagnosis, where enteric fever has been overlooked and called by another name.

The diseases which a careful practitioner will bear in mind when he makes the diagnosis of enteric fever are intermittent fever, remittent fever, and acute catarrhal inflammation of the respiratory organs. In some cases it is

impossible to make an absolutely certain diagnosis the first time the patient is seen. All three of these conditions may be accompanied by chills, by acceleration of the pulse, by elevation of the temperature, and by headache. In intermittent fever the complete subsidence of the fever in the interval between the paroxysms quickly settles the doubt, which may have existed if the patient had been feeling in poor health before the occurrence of the paroxysm, if the chill had been slight, and if the pulse was rapid and weak. In remittent fever the recurrence of chills at tolerably regular intervals, the lower rate of cardiac pulsation with less diminution of its force, the profuse perspiration, the prompt and favorable influence of adequate antiperiodic medication, and the absence of abdominal symptoms, will generally enable one who takes an unprejudiced view of the case to come to an early decision as to the nature of his patient's malady.

Quite as puzzling as any others are the cases in which the patient has, as we are accustomed to say, taken cold, and in consequence has suffered for several days with headache and anorexia, has perhaps taken one or several doses of cathartic pills so that he has had pains in his abdomen and looseness of the bowels, and at the time when he is examined has some elevation of temperature and somewhat quickened action of the heart. Time is an important aid to the diagnosis of these cases, which generally improve rapidly under appropriate treatment, while in cases of typhoid fever the symptoms do not improve, but, on the contrary, particularly if expectant treatment is followed, generally grow worse.

Turning, now, to another side of the subject, what diseases are erroneously called typhoid fever?

I recollect that a man past middle life consulted me as an office patient a few times, in whose chest I discovered phthisical consolidation of a large part of the upper lobe of one lung. He died a few months later under the care of a practitioner of long and extensive experience. The son of the deceased subsequently told me that the doctor said that his father had typhoid fever. Now, perhaps that doctor and the relatives of his patient believed that the man actually had typhoid fever; but I did not, for I knew that the man had consumption, and that it would almost certainly kill him in the course of a few months, as it undoubtedly did. But cases of chronic consumption are not nearly as likely to be mistaken for typhoid fever as those of acute tuberculosis. Some of these cases are very difficult to distinguish from typhoid fever. Their onset, however, is generally distinctly more gradual and indefinite; the headache is a less striking symptom, the abdominal symptoms are less clearly defined, the thoracic symptoms are more marked, the daily variations of temperature are less regular and more extensive, and sweating is more common and more profuse.

Now and then we hear of some woman whose death is alleged to have been caused by typhoid fever, or even by typho-malarial fever, who had a baby two or three weeks before she died. Now, without presuming to deny absolutely the possibility of this sequence of events, when you and I read or hear of such a case we do not believe that

the woman really had typhoid fever. Most of us, I think, feel pretty confident that the woman died of puerperal septicæmia.

In any case, when the patient has a high temperature and a quick, feeble pulse, the single fact that the patient has been confined a few days previously ought to lead the physician to doubt very strongly the existence of enteric fever.

Acute ulcerative endocarditis might perhaps be mistaken for typhoid fever. The petechial eruption of the former is, however, entirely different from the roseolar papules of the latter. The temperature of the former is more erratic, and the endocardial friction sounds, which are so constant in the former, are exceptional and accidental in the latter.

Typhus fever is so very rarely seen here that it is scarcely necessary to mention the great stupidity or hebetude (as the books call it), the flushed and congested cheeks, and the petechial eruption so characteristic of this disease.

Septicæmia and pyæmia might be mistaken for typhoid fever, but generally careful examination will reveal some adequate cause for these disorders. In addition, the wide daily range of temperature, the profuse perspiration, and the great prostration are sufficiently distinctive to remove doubt.

What has been said has had reference chiefly to the early diagnosis of enteric fever. A few words of the later symptoms.

The eruption is not infrequently present when the patient first consults his physician. If not, it generally appears in three or four days, and is then an important aid to diagnosis. The more a man looks for it and the more he becomes accustomed to it, the more valuable information it gives him.

Recurrent intestinal hæmorrhages constitute another aid to diagnosis late in the course of the disease. Many, I fancy, would feel inclined to question the accuracy of a diagnosis of inflammation of the bowels if the patient died in three or four weeks of recurrent hæmorrhages from the bowels.

The occurrence of sudamina during the later stages of the disease and the falling out of the hair during convalescence are occasionally of interest as affording some confirmation of a diagnosis made several weeks before.

I will not trespass longer upon your time to discuss further the individual symptoms of the disease or to enumerate and differentiate the different local diseases which, through carelessness, might be overlooked. It should be a matter of routine to exclude disease of each individual organ before deciding that the patient is suffering from any general or infectious disease.

Fewer mistakes in diagnosis would be made and better results in treatment would be obtained if every practitioner would bear in mind the following rules:

1. Never prescribe for a patient until you have counted his pulse and asked him if he has a headache.
2. If he has a headache and his pulse is above 72, never omit to take his temperature.

3. If his temperature is elevated, his pulse accelerated, and his head aching, never forget to ask yourself if he has typhoid fever.

4. Do not postpone making your diagnosis until the patient has been sick two or three weeks. Make it the first time you see him, or at least at the very earliest possible moment.

MANAGEMENT OF DAMAGED INTESTINE IN STRANGULATED HERNIA.*

By H. HORACE GRANT, A.M., M.D.,

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WITH reference to taxis in strangulated hernia I take it to be pretty well settled, in view of the safety of present surgery and the satisfactory results of recent operations for radical cure, that the theoretical treatment of all hernias, certainly strangulated, should be operative. The various accidents and dangers of returning uninspected an intestine subjected for an uncertain period to an unascertainable degree of constriction, and to an often unknown amount of manipulation, do not need recalling. Practically, however, such treatment is not always applicable. Still, it is not extreme to say that all hernias certainly strangulated twenty-four hours even without vomiting; all hernias certainly strangulated, in which vomiting comes on late after pain and obstruction, as indicating constitutional rather than local influences; all strangulated hernias in which vomiting has occurred, that have been manipulated; and all strangulated hernias in which the symptoms of collapse are appearing, should receive operative treatment at once.

In recent hernias in all situations, and particularly the femoral, this obligation is even more imperative.

To be practical, there arise at the operating table two sets of questions: First, Have we a dangerously damaged gut? Second, If the gut is dangerously damaged, shall we temporize, make an artificial anus, or resect?

As to the first question there must always be uncertainty, but that uncertainty involves great danger. Treves, in his late work on *Operative Surgery*, page 523, recommends that the "doubtful bowel" be returned to the peritoneal cavity. Whenever there is enough doubt about the condition of the gut to be termed "doubtful," I am convinced it should receive different treatment altogether. It is impossible to decide in some instances by either the appearance of the gut, the duration and tightness of the constriction, the history as to vomiting, or the constitutional condition, whether the gut will recover, nor is the apparent restoration of color and circulation always a reliable guide.

Superficially the color may appear normal while necrosis has already begun in the deeper tissues. I offer an illustrative case:

CASE I.—A man, aged thirty-four; admitted to the City Hospital February 18, 1893, at 12 M., with a large tumor of the scrotum. From the patient it was learned that the hernia was an old one, never before strangulated, had been down four days,

* Read before the Kentucky State Medical Society, at Frankfort, Ky., May 11, 1893.

taxis had been done outside the hospital by two physicians without result, no action from the bowels for four days, pain inconsiderable, and no vomiting. There was no impulse on coughing; taxis by the house surgeon was without effect, and hot applications were made.

During the night the patient vomited two or three times and complained of pain. I saw him at 10 A. M. on the 19th. A tumor of the size of a small coconut was found; normal temperature; pulse, 80. Immediate operation, without taxis. The sac, somewhat discolored, was filled with a dark-red serum. The colon, vermiform appendix, and ileocaecal valve presented. The constriction was very tight, the bowel greatly discolored, and presented on the colon two black patches each of the size of a dollar. The constriction was divided and the mass covered with cloths wrung out of hot water changed every five minutes for an hour.

At this time the normal color had almost perfectly returned, the black discoloration was quite gone, and the circulation seemed fully re-established. Under chloroform the constriction was freely divided and the tumor returned carefully, a drainage-tube put in, and the wound left open. General peritonitis developed on the third day, and at the autopsy Dr. Rodman and I found the whole mass in an inflamed condition, with two spots ready to slough, but no perforation. To have made an artificial anus or to have done a resection would, in this case, have involved removal of the head of the colon, and the formidable operation was not to be undertaken in the surroundings.

Plainly the danger of septic peritonitis is almost as great as that of perforation, and so long as any question of the vitality and aseptic condition of the viscera remains, it should be kept out of the peritoneal cavity. If the gangrenous portion is omentum and can be cut away, the danger is thus removed.

CASE II.—March 14, 1893, I saw with Dr. Cochran and Dr. Kelly, of Louisville, Mrs. K., aged forty-two; she had a tumor in the right groin which had been irreducible for two years, but she had been suffering for two days with pain, intestinal obstruction, and occasional vomiting; the pain was severe. No more taxis was made than to verify the diagnosis. Immediate operation. Sac at femoral opening was filled with dark-red fluid and an omental tumor as large as the thumb, two inches and a half long, and becoming gangrenous and adherent. This was drawn out and tied off, and a healthy-looking bowel seen in the bottom of the wound. The omental stump was stitched to the ring at the bottom of the wound, which was closed up without drain. Recovery without temperature or any sign of suppuration.

It appears that in these two cases strangulation and gangrene existed without much constitutional disturbance, and in the first the return of color was not a safe guide to the future treatment.

In future I shall return to the cavity only such of its contents as I am sure are living and aseptic. A little later a plan will be discussed for the treatment of doubtful intestine.

For the second practical consideration three plans of treatment are open: The temporizing, which should consist in free division of the constriction, excision of all septic-looking peritonæum, and the withdrawal of the intestine until sound tissue appears, when the bowel should be sutured through its outer layers to the abdominal wound, cov-

ered with iodoform gauze, and watched for two or three days, if necessary, to be safe. This method was first suggested by Rovsing and Graefe. If the bowel recovers, it is, of course, returned; if not, resection is done or an artificial anus is made.

With respect to the artificial anus it is always to be remembered that such a step is usually but preliminary to an always dangerous and difficult one of restoration of the continuity afterward, and is therefore only to be commended in an extremity.

Treves (*op. cit.*, page 524) advises, in making an "anus præternaturalis," that the stricture be left undivided, lest the protective adhesions be destroyed. Such a course must be unsafe in the extreme.

Lockwood* reports thirty-seven cases of artificial anus made in St. Bartholomew's Hospital, London, in which a free incision was made into the tumor without the removal of the diseased tissues, and usually without division of the stricture. Of these thirty-two, or 88.57 per cent., died, presumably from arrested peristalsis and septic infection.

The method suggested by Poulsen† is perhaps the best. He opens and irrigates the sac, divides the stricture, draws out sound bowel and fastens by sutures, as in Rovsing's operation.

When perforation occurs, the open end is closed with Péan's forceps and kept protected with gauze; after a few days the protrusion is destroyed by thermocautery or scissors, and the enterotome is used to divide spur after Dupuytren's method. Poulsen reports three recoveries and two deaths by this method—a not very encouraging report.

It is found, after the incision of a gangrenous tumor and the establishment of the artificial anus, that though there is a free escape of fecal matter, the pain and vomiting are not always relieved.

This is due to interrupted peristalsis in the upper part of the intestines and to beginning sepsis. If, however, the constriction is freely divided and all dead tissues are removed, the wound irrigated and made clean with gauze packing, the symptoms are usually relieved, even if fatal issue comes later.

CASE III.—In December, 1891, I saw Mrs. C., aged seventy-four; small femoral hernia, strangulated three days, with usual symptoms. The sac was found gangrenous as well as the bowel. No separation of adhesions was made, and the bowel was not drawn out. Free discharge of fecal matter took place, but the patient continued to vomit occasionally, as well as to suffer some pain, and died on the fifth day after the operation, of exhaustion.

CASE IV.—I saw at 6 A. M., March 16th, Mr. G., of Middletown, Ky., who had been suffering from constipation and nausea, with some abdominal pain, for three days, but continued about the house. On the afternoon of the 15th he took a dose of salts. During the night he was attacked with vomiting and very severe abdominal pains. He summoned at midnight a doctor, who found a tumor in the right groin about the size of a hen egg; no taxis was made, but hot applications and opium were ordered.

* *Proceedings of the Royal Medical and Chirurgical Society*, 1891.

† *Annals of Surgery*, January, 1891.

I saw him at 6 A. M. The tumor was an old femoral hernia, usually reducible, for which no truss had ever been worn; it was tightly strangulated and had been irreducible for three days. The patient was asleep and had not vomited in four hours; pulse, 72; temperature, 98°. Immediate operation. Sac was filled with dark-red serum which spurted out on section; sac was gangrenous and the bowel sphacelated and offensive. Two inches were drawn out and healthy gut was sutured through serous membrane only to the healthy wound above the gangrene, then the bowel was split open. The patient recovered well from the operation without fever or pain, though he died from acute mania and voluntary starvation in the sixth week.

The third method of treatment, or resection, is of course the ideal treatment, when the consideration of the patient and surroundings permit. In his abstract, above referred to, Lockwood arrives at a conclusion, from statistics, in favor of resection.

I have collected from the current literature of 1892, 1893, and private communication, reports of seventy-one cases of gangrenous hernia operated on in the three ways. The St. Bartholomew's Hospital cases are not included in these statistics. In fifteen of these cases an artificial anus was made, with five recoveries and ten deaths; in nine cases the temporizing method was employed, with subsequent return of the gut, four recoveries and five deaths, one of the patients who recovered having fecal fistula; of the forty-seven resections, twenty-two recoveries and twenty-five deaths. Thus we have for artificial anus five recoveries and ten deaths, or thirty-three and a third per cent.; return of bowel after it looked safe, four recoveries and five deaths, or forty-four per cent.; resection, twenty-two recoveries and twenty-five deaths, or forty-seven per cent.

TABLE I.—Artificial Anus.

	Recov- ered.	Deaths.
Ransohoff, <i>Annals of Surg.</i> , October, 1892.....	..	1
Poulsen, <i>Annals of Surg.</i> , January, 1893.....	3	2
Sachs, <i>Annals of Surg.</i> , May, 1892.....	1	6
Grant (unpublished).....	1	1

TABLE II.—Returned.

	Recov- ered.	Deaths.
Ransohoff, <i>Annals of Surg.</i> , October, 1892.....	1	With fecal fistula.
Dugan (private communication).....	..	1
Rodman (private communication).....	..	1
Grant (unpublished).....	..	1
Rovsing, <i>Annals of Surg.</i> , March, 1893.....	1	2
Rovsing, <i>Annals of Surg.</i> , January, 1893.....	2	..

TABLE III.—Resection.

	Recov- ered.	Deaths.
Habs, <i>Annals of Surg.</i> , May, 1892.....	7	9
Sachs (rep. Kocher), <i>Annals of Surg.</i> , May, 1892.....	10	15
Tillman, <i>Annals of Surg.</i> , June, 1892.....	1	..
Ransohoff, <i>Annals of Surg.</i> , October, 1892.....	1	..
Duchamp, <i>Annals of Surg.</i> , January, 1893.....	1	..
Borella, <i>Annals of Surg.</i> , February, 1893.....	1	..
Cartledge, <i>Rep. of the Lond. Surg. Soc.</i> , 1893.....	..	1
Vance, <i>Rep. of the Lond. Surg. Soc.</i> , 1893.....	1	..

Of course these statistics are less valuable from the fact that many deaths from each method are not reported, and the doubtful successes from the first two methods are often left unpublished. But the resection statistics are of special value, as the work was done by a few operators—all skilled surgeons—and most likely represent all their work at that date. The above tables of reference are submitted.

These forty-seven resections were done by eight operators and indicate that under favorable surroundings surgical skill can do even more by the ideal method than by temporizing or compromising.

The various methods of resection can not be discussed here.

I present to your inspection the clamp I have before described. With it I am able to make the resection in experimental cases in fifteen minutes. I have not yet perfected the mechanism of the instrument.

I conclude, from the review of the subject: 1. All doubtful gut should be kept out until the question is settled, for two or three days if necessary, under inspection. 2. That when the surroundings are favorable, the experienced surgeon should resect the gangrenous gut, and after thorough antiseptic irrigation make immediate suture, unless the patient be very old, feeble, or in collapse. 3. That when the surroundings are not favorable, nor convenience and experience at hand, the dead tissues should be cut away, thoroughly irrigated, healthy gut drawn out and sutured and packed with gauze, with the view of closing the fecal fistula after two or three weeks.

SOME NEW FEATURES IN THE ETIOLOGY AND TREATMENT OF CHOLERA INFANTUM.*

By J. F. CHMELICEK, M. D.,
DETROIT.

It has been my happy lot to practice medicine among the population occupying the tenement houses of New York for the past three years. I call it a happy lot, first, because it has given me the opportunity to treat more cases of cholera infantum, or so-called summer complaint, than all the other diseases of children put together; second, because it is the best field for young physicians open for observation, and there are unique cases that can not be found in clinics or dispensaries, as you come in direct contact with the most unhygienic and unsanitary surroundings, and in direct contact with the bare truth. I do not need to go into a long and time-absorbing description of those large tenement houses, with which everybody is more or less familiar, but I will describe the one I have connected with my observation, and will mention it with the first case that came under my treatment.

It was in the latter part of June of 1890 when I was aroused one morning to hurry down to see a patient in East Seventy-third street, who was suddenly taken sick after a very warm, sultry

* Read before the Detroit Medical and Literary Association, June 19, 1893.

night. Walking alongside of big tenement houses, I came to the number indicated in the message. I noticed a great display of meat before a butcher shop that was located in the same house, a grocery store next to this, and a saloon on the corner, an Italian fruit stand completing the quartette. Upon entering the hall, I almost fainted with the terrible smell of half-decomposed meat being boiled in the back room of the butcher shop, from which all the vapors entered the hall and ascended to the upper floors. Before I reached the top floor I perspired freely, and had to gasp for fresh air. The house was fully occupied by sixteen families, numbering in all eighty-two persons, forty-two of whom were children, and of this fully half below five years. Every door was open, but the windows leading to the dark air shaft were closed to avoid the draft, as I found out later. The door leading directly into the kitchen of the apartment to which I was directed was also open, and passing through I came in contact with my patient lying on a lounge in the front room, of which the windows were tightly closed; immediately I opened the windows, but the rush of the foul air from the floors below made such a terrible draft that I ordered the door leading into the hall to be closed. The heat from the stove and radiating from the roof (this being on the top floor) made the room as hot as a furnace. After getting the history and making the examination of the child I made the simple diagnosis of cholera infantum, and sat down to the table to prescribe.

There was such a buzzing of flies leaving the oilcloth-covered table as I had never seen before, and, on my mentioning this fact to the people, I was told they were lucky, for the people down below had the ceiling almost black with them, of the truth of which I had plenty of opportunity to satisfy myself later on. At that time I did not pay any more attention to it, the child being fed at the table and being in dentition. I ordered a general bath lasting five minutes, with friction, then cut off all food supply except milk with limewater prepared according to Dr. W. H. Thomson's formula—viz., cream, half an ounce; milk, two ounces; linewater, two ounces; sugar of milk, one drachm—and, prescribing powders of calomel well triturated with saccharum lactis, left and promised to call the next morning. The same day, about three o'clock P. M., I was hurriedly summoned to see my patient, as he was in convulsions, with high fever. I immediately departed for the house, ordered mustard poultices to be applied to the abdomen, and myself prepared a bath, finding the convulsions due to some intestinal irritation. The child soon rallied, but the people insisted on giving some other medicine, the powders having caused more vomiting.

I gave the common chalk mixture with an addition of bismuth, and inquired if the child had been fed as I had ordered. I was told it was, except that instead of using milk sugar they used a teaspoonful of common sugar from the bowl standing on the table; out of mere curiosity or impulse, I looked in, but I can not describe my surprise at finding the sugar covered with a black, crawling mass of flies, and having the appearance of raisins more than sugar; and on driving them away and examining it I found the side of the bowl covered with the excreta of the flies, also making the granules appear almost gray. My suspicion was aroused, and on looking around I found a piece of soiled linen thrown carelessly in the corner of the kitchen, also vomited matter on the floor, covered with flies. Before leaving I received an invitation to call on the floor below and see another patient, a girl of eight months with the first dentition; child feeble, being fed on bottle since four months old; people used condensed milk diluted with water drawn directly from the pipe; they also gave brandy in sweetened water, as they had lost one child a year before, and had been told to do so by the former physician the child took on an average from two to three table-

spoonfuls of brandy in water a day, its thirst being immense; this naturally required the addition of sugar, which was exposed as carelessly as with the former case in an open receptacle for the benefit of the flies in another room. After I left the room I went home, and being at the time a recent graduate, I took out some books and informed myself on the subject thoroughly, but not to my satisfaction, as I have not found in the leading text-books any mention made of the etiology having any connection with the use of sugar, or of flies acting as carriers of the infection in coming and going from the soiled floor and linen into the sugar receptacle, and conversely, depositing feces on the food to be consumed. The night following I was called to attend two more children in other parts of the city, but, the next day being very sultry, the increase in the little patients was enormous, three more being in the house adjoining the one mentioned above, and one more in the same house; this was on June 26th. All of these children were taken sick suddenly and all were fed more or less on artificial food; many of them were given sweetened water with different flavors, but mostly brandy; also watermelons bought from the Italian fruit-dealer on the corner. Vomiting and purging were predominating in those who were not teething; fever, colicky pains, and convulsions in those who were teething. After carefully examining and comparing the facts I came to the conclusion that there existed a direct proportion between the number of flies in the rooms, the amount of sugar consumed, and the cleanliness of the parents; also the existence of raw meat in the immediate neighborhood. That after removing the child from the house and giving him nothing but cold limewater sweetened with a little glycerin, the child got better in a few days. I regarded medicine containing sugar as doing more harm than good, and endeavored to impress my patients' parents with the idea that leaving the child twenty-four or forty-eight hours without food would not starve it, but feeding it with polluted sugar water, or sweetened milk, with the sugar used from the receptacles exposed to the flies, would be certain death. During the summer I treated fifty-six cases with but two deaths, my favorite prescription being one of these: During severe vomiting, spir. amon. arom., gtt. j; glycerin, gtt. x; aquæ calcis, 4 c. c.; dose, 4 c. c. every hour or two. Along with this I ordered two baths of five minutes' duration daily, and nothing but pure boiled milk, mixed with equal portions of limewater, and kept on ice or in a tightly corked bottle until used. I fed my pug dog on milk sweetened with the sugar obtained from one of these houses, with the result of giving him diarrhoea. During the winter I had experimented with unslaked lime and glycerin water, and found out that five per cent. of glycerin added to boiled water would dissolve twice as much of lime as pure water would. This solution, then, added to boiled milk will keep it indefinitely if tightly corked, and even if exposed to the atmosphere it keeps it some time without giving acid reaction. The next summer of 1891 I started out to treat my first case of cholera infantum with nothing but freshly boiled milk, to which I added the above-described solution, and paying more attention to the mothers than to the children and instructing them how to keep their children healthy without filling their stomachs with brandy and paregoric.

I gave solution, in proportion of two ounces to eight ounces of milk, and in extreme prostration I gave five drops of brandy in five per cent. of glycerin and limewater. This proved sufficient in my hands. I disposed of twenty-three cases (I left for Europe in August) without a single death. The summer of 1892 was passed with thirty-eight cases; one death due to oedema of the lungs. My suspicion as to the probable cause was very well illustrated during the last summer. I was called to see two patients in one house on Avenue A, just off

the horse market, where a horse had been killed and left lying for days previously; the cases were both on the ground floor (this is considered fortunate for a New York physician) and the rooms were filled with flies. As I came prior to my promise, the mother of one of the children had taken her baby down to the river front two blocks below, and while I had to wait I noticed the flies coming and going directly to the dead horse, exposed to the hot sun's rays, and on the mantelpiece there was a bottle containing some mixture around which flies swarmed, and it occurred to me that the mother was feeding her little one on so much dejecta washed from the mouth of the bottle at regular intervals. The child got well on withdrawal of all medicines. The adjoining houses were full of little patients treated by other physicians.

Without going further, I sum up and say that there is good reason to believe that cholera infantum is due to direct infection, which is propagated by flies, sugar, and fruits as a medium, and is aggravated by improper feeding, hot weather, and exhausting diseases, such as dentition, malarial disease, and rickets. Its treatment should be confined mostly to improvement of the surroundings, teaching the mother the simplest rules of hygiene and how to prepare cow's milk, and cut off all supply of sugar and substitute glycerin in its place. I come now before you, gentlemen, with the plea that you give to the paper your kind consideration and the treatment a fair trial, and those who have more facilities also strict investigation as to the bacteriological question. The record of one hundred and seventeen cases treated in the same manner with but three deaths, with hardly any medication, should also be accounted for. The bath I use is of 85° F., lowered with a few pints of cold water to 65°, while the patient is in the bath tub, and friction is given. In very extreme cases I have withdrawn food for forty-eight hours, giving nothing but glycerin and limewater in teaspoonful doses, with a few drops of brandy in those passing the acute form. The amount of milk I limit to one pint or less in twenty-four hours throughout the illness. The average age of my patients was eleven months and three weeks. I wish to impress the reader with the fact that I have described cases of cholera infantum, and not cholera morbus, as he may think. (See below.)

NOTE.—After I had furnished my paper, which I thought to be original, I read in the *New York Medical Journal* of the 3d inst. the communication of Dr. Savtshalk, of Russia, who has experimented on the capability of flies carrying the microbe of cholera. He fed flies on broth containing cholera dejecta and found that for a considerable time thereafter the flies expelled faeces loaded with active cholera microbes. I was also unaware of the present Surgeon-General Sternberg's recent remarks before the New York Academy of Medicine, in which he is reported to have said that his own experience had led him to look upon the fly as a veritable cholera-infection carrier. I am pleased that such eminent observers have come to the same view to which I was led spontaneously three years ago.

485 BEAULIEU STREET.

The Death of Dr. John Rae, the famous Arctic explorer, is reported as having taken place at his home, in London, on Monday, the 24th inst.

NITROGLYCERIN HYPODERMICALLY FOR THE RELIEF OF THE EPILEPTIC PAROXYSM.

By H. ELLIOTT BATES, M. D.,

POUGHKEEPSIE, N. Y.

THE beneficial results which follow the administration of nitroglycerin in angina pectoris, and the rapid relief of those headaches accompanied by small, wiry pulse, pallor of the face, and sudden faintness, and often the relief of a severe neuralgia, led to the question, Can nitroglycerin be utilized to relieve the arterial spasm of the epileptic attack, thereby to establish consciousness, relieve the convulsive movements, prevent the after-exhaustion, and to prevent as far as possible the effects of the anæmia of the brain?

The use of this drug and nitrite of amyl has long been advocated at the beginning of an attack as soon as the least suspicion of an aura arises—i. e., to abort the attack—but its use after the attack has been established, when the sufferer lies where he has fallen, with rigid limbs and unconscious of all surroundings, has not been advocated to my knowledge. Obviously it called for the employment of the hypodermic method of medication and it was given a trial.

In the first case the patient had had attacks for four years. At this time he lay as he had fallen, rigid and totally unconscious, with violent muscular convulsions, foam about the mouth, and all the other symptoms of an epileptic seizure. A hypodermic injection of one one-hundredth of a grain of nitroglycerin was given, and before the needle could be withdrawn total relaxation took place, consciousness returned, and the patient called for a drink of water.

Another case was seen in a severe convulsive seizure. The history was given of frequent attacks of the grand mal, with a distinct aura, and the attack followed by malaise and exhaustion which lasted for several days.

Here the administration of the drug was followed by speedy and very satisfactory results.

In a third case, seen four times, the method has proved of great value, as the patient while in the attack is very violent—an object of terror to his family and the neighborhood. The use of the drug was followed by a prompt return to consciousness. The method has been tried in twelve cases in all without a failure. Once a second dose of one one-hundredth of a grain was required, but that was entirely successful.

The number of cases is small, but *non numerandæ, sed perpendendæ observationes*.

In all the cases the after-effects of the attack were markedly lessened, the patients recovered without the fatigue and general demoralization, and the sudden transition from an object of terror to a rational being has been of considerable value to patient and physician. It is not claimed for the method that it is curative. It does shorten the attack, saves fatigue, and I believe has some influence upon the frequency of the attacks. The after-treatment consists of the administration of the bromides in a bitter infusion, hops being preferred, and the use of minute doses of nitroglycerin.

This paper is written in the hope that the method will be given a trial, and that it may prove of some use to the physician in treating what is usually an urgent condition.

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A HOUSE DIVIDED AGAINST ITSELF.

It is unfortunate that the interests of the medical profession of the United States are so varied that each year the possibility of securing harmonious action which will tend to the general advancement of the profession's influence and interests seems to be more and more remote.

Dr. J. C. Culbertson, in his valedictory article as editor of the *Journal of the American Medical Association*, called attention to the fact that that association was not holding its own, and added that, unless action that would modify a number of the by-laws was taken, there was imminent danger of its disintegration and of the formation of another body of national character that would attempt to do the work that it ought to accomplish.

Recent years have witnessed the multiplication of societies of specialists until to-day there appears to be no specialty that is not represented by at least one national society. For some specialties there are two societies in existence. The work of these societies of specialists is very unequal, a few good papers being presented, together with a number of mediocre essays.

Some of these special societies, such as the American Ophthalmological Association, keep a sharp watch that their fellows shall not injure the dignity of their position, and unprofessional conduct is visited by expulsion.

Mr. Ernest Hart, who, as the editor of the *British Medical Journal*, has had ample opportunity to become acquainted with the various factors contributing to the success of a national medical association, has recently been in this country as the guest of the American Medical Association. He contributes to his journal for July 15th some of his impressions of the medical profession in America. He refers to New York, with its wealth of clinical material, its largely developed hospitals and schools, its prosperous practitioners and consultants, and its reputed assumption of a certain leadership that some think too self-confident, with its roots not yet deeply set. It is to be deplored that the New York physicians are so unfortunate as to have given this impression—one that is not, it will be admitted, original with Mr. Hart, but one that we have heard from the graduates of our medical colleges, from the physicians that attend our post-graduate courses, and from the physicians of the South and the West that come in contact with New York practitioners. While it can not be admitted that New York physicians, as a rule, assume a superiority and importance that neither their personal qualifications nor the sum-total of New York's contributions to medical science justify, it can not be denied that some of them have aided in disseminating this impression.

As a result of this, so much sectional difference has been aroused, and the organization of the annual specialty congresses all over the United States has been so assiduously developed, that it very naturally appears to Mr. Hart that some difficulty may be found in restoring unity of professional sentiment and action. He has also been impressed with the facts that nowhere else than in America could the results of a common understanding on the relations of the profession to the public and of their duties to each other be more valuable, and that nowhere else does there exist a stronger need or a more useful sphere for medical thought and knowledge in guiding municipalities and executive officers in questions of public health and the government of public institutions, the endowment of science, and the maintenance of adequate standards of education and examination. "The future of the higher life in America," he says, "and the development of culture and mental progress, the struggle against commercialism and the blinding and corrupting worship of the dollar, lies largely with the professional classes. The medical tradition is essentially a protest and an antidote against this curse of new communities."

This kindly criticism is made by one that has, we believe, the interests of the medical profession of the world at heart, and it can not but do us good to see ourselves as others see us. It remains for our representative men to attempt to secure uniformity of action by our societies, so as to remove the existing opprobrium of the profession of the United States being a house divided against itself.

INTRAPERITONEAL HÆMORRHAGE.

The annual oration for 1893 before the Medical and Chirurgical Faculty of Maryland was delivered by Dr. Reginald H. Fitz, of Harvard University. The paper is an absorbingly interesting one and lacks little if anything of meriting the title of a classical essay. We find it reported in full in the *Maryland Medical Journal* for June 17th. The practical points of diagnosis and treatment occupy the chief places in the paper. Dr. Fitz would make a division of intraperitoneal hæmorrhages according to the gravity of the loss of blood as well as according to the situation of the escaped blood in the peritoneal cavity. The location of the hæmorrhage will often have much to do with the subsequent presence or absence of septic infection. Intraperitoneal hæmatocoele—a shut-in hæmorrhage—is generally pelvic in origin and site, occurs in women, and forms a tumor. If the bleeding does not continue and the conditions for recovery are favorable, there will frequently be an uneventful absorption of the clot. But the pelvis, being a region favorable to a septic infection of contained clots, may become the arena of a destructive inflammation of the surroundings. This may result in a discharge by the rectum, by the vagina, or by other channels, or rarely we meet with a quiet absorption without septic complications; and the possibility of these occurrences "is an insufficient justification for a severe operation for their prevention." These hæmorrhages, therefore, should be intelligently separated one from another, whether

they are immediately dangerous or only remotely so, and whether or not they are comparatively harmless.

The immediate danger from these extravasations is in rapidly progressing anæmia. The difficulty attending the diagnosis of these cases is illustrated by the following sentence of Dr. Fitz: "An exploratory laparotomy has often proved to be the only means by which the diagnosis has been established, and has repeatedly made clear that there has been no intraperitoneal hæmorrhage, which had been suspected." Only by that full knowledge of the complications arising from abdominal aneurysm, cancer, ectopic gestation, and many other conditions can the "diagnosis by exclusion" be made out. Veit has shown that there are no physical signs sufficient to prove the presence of a large quantity of blood free in the peritoneal cavity.

Dr. Fitz has a good opinion of laparotomy in carefully selected cases, but he is not an advocate for an early exploratory operation. If this operation is done, the case is ushered at once from the medical into the surgical domain. "If this is employed," he says, "the treatment becomes of necessity abdominal and surgical, whereas in many instances it should be medical or, if surgical, then vaginal or rectal." He favors medical treatment whenever it is feasible, for it either permits the patient to get well without the use of the knife or it renders possible an easy operation when needed, and one not demanding the maximum of skill. In this view of the case, we naturally expect to find Dr. Fitz an earnest friend of the operation of vaginal puncture, and from his remarks at the close of the oration we are led to infer that he has had a large and successful experience in that direction. He quotes Zweifel's statistics as to the forms of treatment other than by laparotomy as follows: By expectant treatment, 144 cases, of which 16.6 per cent. were fatal; by puncture, 66 cases, with 15 per cent. fatal; by vaginal incision, 30 cases, only 10 per cent. fatal.

The avoidance of laparotomy in these cases, except when there are well-defined and cogent reasons, may be set down as the teaching of this admirable and most readable discourse.

MINOR PARAGRAPHS.

WHATNOTS AS NECESSARY FURNITURE FOR A QUARANTINE STATION.

The Melbourne correspondent of the *British Medical Journal* states that the visitor to the quarantine station at Point Nepean is struck by the quantity of whatnots, in all kinds of designs and in various kinds of woods, indiscriminately scattered over the buildings. It appears that some years ago there was an unexpected demand for accommodation, owing to several large passenger steamers being sent into quarantine at the same time. The number of bedroom utensils was found inadequate to supply the wants of the inmates, and it was deemed necessary to telegraph for an additional supply to Melbourne. The telegraph operator being a lady, the delicate medical officer directed that a telegram be sent: "Forward at once to quarantine station one hundred whatnots." In those days anything ordered for the station was sent, no matter at what cost, and a contractor supplied the whatnots at short notice, at \$30 each.

THE CROTON WATER.

NEW YORK's water supply is not of such poor quality as some good people imagine; still, the measures that the board of health is reported to be about to take for its purification are such as would hardly be taken if the board did not feel that the water was in need of improvement. We have not much faith in those measures, but they will doubtless do no harm beyond using up money to very little purpose. The residents of that part of Westchester County in which the Croton water-shed is situated have observed that, whenever a new dam is completed and a fresh portion of territory is flooded, too little attention is paid to preparing the ground to serve as a place of storage for uncontaminated water, but barn-yards, privy-vaults, and other unsavory belongings of the deserted dwellings are allowed to remain to take their share in forming the bottom. It is to be hoped that in the further prosecution of the reservoir work more care will be taken as to such matters.

THE CHOLERA IN NAPLES.

Dr. Young, of the United States Marine-Hospital Service, having informed Surgeon-General Wyman of the presence of cholera in Naples and of the impossibility of enforcing the American immigration regulations at that port, has been ordered to refuse to give bills of health without their enforcement. This action is expected to have the effect of compelling the transportation companies either to conform to our rules or to stop bringing us immigrants by way of Naples.

DEATH FROM FOOT-BALL.

A MAN, aged twenty-seven years, a member of one of the Brooklyn teams that play foot-ball on Sunday, met with a fatal injury in a game played about a week ago. He received a kick in the abdomen, and his death ensued in about forty-eight hours. The game played by these teams is said to be different from that played by college undergraduates.

A RECENT CORONER'S JURY'S VERDICT.

At Highland, New York, the body of a drowned woman was taken out of the river recently. A jury, regularly constituted for the holding of an inquest, is reported to have rendered the following verdict. "We do say upon oath that the deceased came to her death by being found in the Hudson River, cause of death unknown."

THE "HEALING SPRING" OF HARLEM.

THE medicinal virtues attributed to a certain spring in Morningside Park seem to be imaginary. Worse than that, the water has been shown to come from an old well and to be badly polluted with sewage. Consequently the well has been ordered by the board of health to be filled up, and the water of all the wells remaining on Manhattan Island is to be subjected to the board's scrutiny.

THE ENGLISH DOCTOR'S VACATION.

MR. ERNEST HART very amiably and sincerely states in one of his recent papers on matters connected with his recent visit to America, that it is idle and foolish for any British doctor who has the leisure and the necessary means to think of spending his autumn elsewhere than in America.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 25, 1893:

DISEASES.	Week ending July 18.		Week ending July 25.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	2	4	0	1
Typhoid fever.....	18	3	13	3
Scarlet fever.....	64	5	52	5
Cerebro-spinal meningitis.....	5	3	14	12
Measles.....	189	5	177	9
Diphtheria.....	111	34	99	37
Small-pox.....	3	0	11	1

A Novel Competition for Nurses.—The editor of the *Hospital*, a London weekly journal, asks us to print the following:

In the course of the discussion on Nurses' Homes, which took place at the International Congress at Chicago, Dr. Billings, the president, expressed the view that it was about time that women manifested the latent power claimed for them in a practical and definite form. He pointed out, for example, that it had been left to man—an impotent, weak creature as women knew him to be—to design and erect homes for nurses and training-school buildings. Architects and male experts had exhausted their ingenuity in designing such buildings, and he thought that congress was a very appropriate platform from which to invite the exhibition of woman's latent power by urging the superintendents to elaborate plans and enumerate each item which a model nurses' home and training school should contain. We have had much pleasure in falling in with Dr. Billings's suggestion, and have decided to organize a competition which will be open to any woman engaged in nursing from any part of the civilized world. The following details of the proposed competition will no doubt be of interest:

Attached to a Hospital or under Separate Management.—Two prizes—namely, a first prize of \$75 (£15) for the best plan sent in for competition, and a second prize of \$25 (£5)—are offered by the editor of the *Hospital*, London, England, for competition among lady superintendents, matrons, and nurses in the British Empire, the United States, and the countries of Europe.

Competitors must send in the proposals in type-written form, which must consist of two parts: (1) A statement setting forth categorically all the rooms and accommodation which are necessary in order to make the proposed nurses' home a model of what such an establishment should be where room is provided for from fifty to one hundred nurses; (2) a second statement and plan prepared in similar form which provides accommodation for from one hundred and fifty to two hundred nurses. Each of these specifications—(1) and (2)—must be accompanied by plans drawn in a uniform scale, and must explain how the proposed home for nurses can be extended, should the growth of the establishment render such a step necessary.

Conditions.—1. The competitors must send their names and addresses by November 1, 1893, to Dr. J. S. Billings, U. S. Army, Washington, D. C., and all plans and proposals presented for competition must reach Dr. Billings not later than January 1, 1894.

2. Dr. Billings, Dr. Henry M. Hurd, superintendent of the Johns Hopkins Hospital, Baltimore, Md., and Miss Sophia S. Palmer, superintendent of the Garfield Hospital, Washington, D. C., are appointed as the judges of the papers and plans submitted in this competition, and their decision will be final. Should the papers and plans submitted demand such a course, the judges reserve the right of withholding any award.

3. All proposals must be type-written on one side of the paper only, and all plans must be drawn to a uniform scale of one eighth inch to one foot.

SPECIAL NOTE.—It is proposed to publish an account of the competition, with a selection from the competing plans, such publication to be undertaken by the Scientific Press (Limited), 428 Strand, London, W. C., at their option, to whom papers and plans will be sent by the judges after they have made their award.

The Conditions of Admission to Practice in Iowa.—The following resolutions have been passed by the Iowa State Board of Medical Examiners:

First.—That from and after this date, June 27, 1893, this board will not issue certificates to practice medicine and surgery, in Iowa, except upon satisfactory examination, to the graduates of any medical college not requiring as a condition of graduation four years of medical study, including not less than three graded courses of medical lectures, of not less than six months each—no two of which said courses shall be within the same calendar year.

Second.—That while this board appreciates and commends the efforts made by the various national associations of medical colleges to raise the standard of medical education and have each adopted a curriculum of study greatly in advance of former years, this board under our present law, and the decision of the Supreme Court thereon, can not and will not recognize as "of good standing" any medical college belonging to such national association except upon compliance by announcement and practice, in letter and in spirit, with our schedule of minimum requirements.

Third.—That this board will not recognize, nor be bound by, any contracts between medical colleges and their students, either expressed or implied by their matriculation.

Fourth.—That any medical college failing at any session to conform to our requirements shall, upon satisfactory evidence thereof, be regarded as not in good standing for the session thus defective, and the secretary is hereby directed not to issue certificates to the graduates thereof except upon the authority of this board.

Fifth.—That this board recognizes and will exercise the right under the law to refuse certificates to the graduates of any medical college, without reference to its standing, upon palpable evidence of incompetency, or upon conviction of a felony in connection with the practice of medicine; or to revoke certificates for like causes. Further,

Whereas, A number of medical colleges in the United States and Canada have adopted and require a four years' graded course of medical lectures as a condition of graduation, and others have expressed a determination to do so, therefore,

Resolved, Sixth.—That after July 4, 1893, no medical college shall be recognized by this board as "of good standing" within the meaning of Section 1, Chapter 104, Laws 1886, that does not require as a condition of graduation four graded courses of medical lectures of not less than six months each—no two of which said courses shall be within the same calendar year.

Seventh.—That graduation from any college of dentistry and veterinary medicine or of pharmacy upon a satisfactory examination in anatomy, recognized by this board as of good standing, may be accepted as the equivalent of the first year's course of medical lectures by colleges requiring as a condition of graduation the graded courses above specified.

Eighth.—That the secretary of this board be and he is hereby directed to furnish all the medical colleges of the United States and Canada, and the secretaries of the respective national associations of medical colleges, together with the leading medical journals of the country, with a copy of the foregoing resolutions, and of our schedule of minimum requirements, and publish the same in the *Monthly Bulletin* of the State Board of Health.

The Pan-American Medical Congress.—The following named committees are announced: *Committee of Arrangements.*—Dr. Samuel S. Adams (chairman), Dr. J. R. Wellington (secretary), Dr. G. L. Magruder (treasurer). *Executive Committee.*—Dr. Samuel S. Adams (chairman), Surgeon-General George M. Sternberg of the army, Surgeon-General J. Rufus Tryon of the navy, Surgeon-General Walter Wyman of the Marine-Hospital Service, Dr. S. C. Busey, Dr. G. Wythe Cook, Dr. Carl H. A. Kleinschmidt, Dr. H. L. E. Johnson, Dr. Llewellyn Eliot, Dr. H. H. Barker, Dr. C. W. Richardson, Dr. W. Sinclair Bowen, Dr. George S. Ober, Dr. G. L. Magruder, Dr. J. R. Wellington, and John R. Walton, D. D. S. *Committee on Reception.*—Dr. S. C. Busey (chairman), Surgeon-General George M. Sternberg, Surgeon-General J. Rufus Tryon, Surgeon-General Walter Wyman, Dr. J. Ford Thompson, Dr. Charles Hagner, Dr. Louis Mackall, Dr. J. Taber Johnson, Dr. T. Morris Murray, Dr. G. Byrd Harrison, and Dr. Joseph H. Bryan. *Commit-*

tee on Entertainments.—Dr. G. Wythe Cook (chairman), Dr. G. N. Acker, and Dr. Thomas E. McArdle. *Committee on Registration.*—Dr. Carl H. A. Kleinschmidt (chairman), Dr. John S. McLain, and Dr. Johnson Elliot. *Committee on Railroads.*—Dr. H. L. E. Johnson (chairman), Dr. E. L. Tompkins, and Dr. J. Foster Scott. *Committee on Printing.*—Dr. Llewellyn Elliot (chairman), Dr. Thomas N. Vincent, and Dr. F. B. Bishop. *Committee on Halls and Exhibits.*—Dr. H. H. Barker (chairman), Dr. J. T. Winter, and Dr. C. M. Buchanan. *Committee on Ways and Means.*—Dr. C. W. Richardson (chairman), Dr. John Van Rensselaer, Dr. William Dillenback, Dr. Henry B. Deale, and Dr. William Compton. *Committee on Information.*—Dr. W. Sinclair Bowen (chairman), Dr. E. Oliver Belt, and Dr. F. S. Nash. *Committee on Hotels.*—Dr. George S. Ober (chairman), Dr. William E. Handy, and Dr. D. O. Leech. Mr. Ernest Hart, the editor of the *British Medical Journal*, and Professor Czerny, of Heidelberg, will be among the distinguished guests. Practically all of the governments have appointed official delegates to the congress in response to the invitation by the President of the United States. The United States Government will be represented by six delegates. The larger cities of all the Latin-American countries have appointed delegates to participate in the proceedings of the Sections in Hygiene, Climatology, and Demography, and on Marine Hygiene and Quarantine, and similar appointments are expected to be made by the cities of the United States. Seventy-six similar delegates have so far been appointed by the governors of States in the United States. A large number of delegates have been chosen by the medical colleges of the United States and other American countries to attend the Section in Medical Pedagogics, under the presidency of Professor J. Collins Warren, of Boston. A Section in *Materia Medica and Pharmacology* has been organized under the executive presidency of Professor Joseph P. Remington, of Longport, N. J., with Professor F. G. Ryan, 3739 Brown Street, Philadelphia, as English-speaking secretary. This section promises to be one of the most important of the entire congress. Delegates have been invited from all the pharmaceutical societies and colleges in all the Americas. Those contemplating attendance are invited to prepare papers on pharmaceutical topics. Titles should be sent at once to the secretary.

Letters to the Editor.

BUTCHERS' REFUSE.

NEW YORK, July 24, 1893.

To the Editor of the *New York Medical Journal*:

SIR: There is a nuisance in New York that no one seems to mind, no one to guard. I mean the butchers' refuse-collecting wagons. Any one who is obliged to traverse the crowded streets of our tenement districts between the eighth and eleventh morning hours will sometimes once in every half an hour, but sometimes every five or ten minutes, be shocked by a most heavy, foul, sickening smell, which he perceives as emanating from the by-going or standing, filled or filling-up, but always imperfectly-closed, collecting wagons. The refuse is piled up at the butcher's for several days and, it being unguarded against, enters into a rapid decomposition and then is collected. The collection itself is odious: the refuse being taken out in open baskets is, these being deposited there on the street, assorted and measured, at which procedure nearly every piece of foul fat or bone is rehandled, the repugnant smell in the mean time saturating the air all around. Between the procedures the wagons are usually opened also, and then both the sources their exhalations combine. I have been repeatedly stricken, without noticing such a wagon at all at first, with its smell at distances varying from thirty to fifty feet, and at the third and fourth story of a house, wherein it entered through the open

windows. The wagons themselves are all more or less defective and allow free escape of the gases; when they are full—and this is often to excess—the refuse is in some cases imperfectly covered, in some left uncovered, and they are then slowly driven through the streets, leaving whole floods of their baneful smell behind. Is this smell so harmless that no notice needs to be taken of it at all by the authorities? Is this some other kind of decomposition than that of dead animals on the street or of other animal decaying matter there, which all is so carefully and rapidly removed? Decidedly not! Animal decomposition in the free access of air with moisture and heat is always similar, and the danger of the decaying animal matter of the street and that of the butcher is practically the same and simply proportionate.

But how well-nigh ridiculous, then, seems the contrast between the nearly air-tight, whole dead-animal wagons and the neglected mostly semi-open wagons of their dead parts! As a small illustration of the harmfulness of the gases in question, let this be served: I was present at Mrs. B.'s, 423 East Seventy-second Street, a patient convalescing from cholera morbus. The lady was sitting on the bed all free from vomiting and diarrhoea for nearly twenty-four hours, when at once a foul smell, which proved to be that of a wagon collecting the refuse of a butcher in the neighboring house, filled the room (the patient occupies the second story of the house). Immediately upon inhaling this odor the patient complained of it and was taken with nausea and vomiting, followed by general prostration. There was absolutely no other imaginable cause for this than the overwhelming influence over the weakened nervous system of the foul gases—a nervous poisoning. And it is not simply the gases; there are certainly disseminated beside them the germs of the animal decomposition, which for the greater part are pathogenic germs, along our streets, where hundreds of weak children and invalids inhale them.

There is a help to this condition. Let the board of health give the subject proper attention, and if the press will assist, we shall soon see the refuse collected fresh, in early mornings, rapidly, and in clean and air-tight wagons. How far more grateful a field here than that of the critic of street excavation and Croton water!

ALOIS F. HEDLICKA, M. D.

A TAPEWORM REMOVED FROM A CHILD EIGHTEEN MONTHS OLD.

ANN ARBOR, MICH., July 19, 1893.

To the Editor of the *New York Medical Journal*:

SIR: The writer desires to record the following clinical note of a case that recently came under observation:

The first segment of the worm passed from the child on June 30th last. My diagnosis was made and treatment begun on the following day.

The treatment resorted to in this case consisted in first placing the child upon a restricted diet for two days, then the administration of four drops of oil of male fern in half a teaspoonful of glycerin night and morning, and also every second day five grains of compound jalap powder as a cathartic. On the tenth day of treatment the worm passed from the child entire. While the above-mentioned mode of treatment may be no better than the numerous others with which physicians are familiar, yet I desire to make record of it because it has been uniformly successful with me in several cases of *taenias* in adults.

While *taenia* may develop in the human being at all ages, from infants five days old* to the most aged, yet it is quite rare

* Professor S. G. Armor in Flint's *Practice of Medicine*, 4th edition, p. 618.

to find it in young children, since a child's mode of living is not, as a rule, such as will lead to the development of tapeworm.

J. A. WESSINGER, M. D.

Book Notices.

A Text-book of Medicine, for Students and Practitioners. By DR. ADOLPH STRÜMPPELL, Professor and Director of the Medical Clinique at Erlangen. Second American Edition. Translated, by permission, from the Second and Third, and thoroughly revised from the Sixth German Edition. By HERMAN F. VICKEY, A. B., M. D., Instructor in Clinical Medicine, Harvard University; Physician to Out-patients, Massachusetts General Hospital, etc.; and PHILIP COOMBS KNAPP, A. M., M. D., Clinical Instructor in Diseases of the Nervous System, Harvard University; Physician to Out-patients with Diseases of the Nervous System, Boston City Hospital, etc. With Editorial Notes by FREDERICK O. SHATTUCK, A. M., M. D., Jackson Professor of Clinical Medicine, Harvard University; Visiting Physician to the Massachusetts General Hospital, etc. With One Hundred and Nineteen Illustrations. New York: D. Appleton & Co., 1893. Pp. xxiii-1043.

This new edition of a text-book that the translators state in their preface is used in twenty-eight medical colleges in the United States contains the revisions of the sixth German edition, and so numerous are these additions that the present volume is virtually a new work. The text has been increased by fifty-eight pages, and eight new illustrations have been added.

In the chapter on typhoid fever suitable reference has been made to the experimental inoculation of animals with the typhoid bacilli, and to the difficulty of explaining how and under what peculiar circumstances these bacilli penetrate into the human body. The author suggests that the cases of "pneumotyphoid" are caused by primary pulmonary infection with the typhoid bacilli, thus taking a position against the theory of contemporaneous pneumococcus infection. He states that the nervous phenomena are due to the toxins elaborated in the system by the bacillus. Reference is made to the metatypoidal hemiplegia or aphasia that may be due to hæmorrhage, embolism, or a localized encephalitis. Acetanilide, kairin, thalline, and phenacetine are now referred to in the treatment.

In the chapter on scarlet fever the influence of the "chain-forming" micrococcus of Löffler in causing, at least, the complications of the disease is mentioned, also the necessity of suitably disinfecting the nose.

The chapter on small-pox has been enlarged by a section on the character of the variolous poison. While there is reference to the failure of the French experiments of 1865 to inoculate cows with the contents of variolous pustules and thus produce vaccinia, there is none to later investigators' successful attenuation of variolous matter in the cow.

The translators have made a useful addition, in the chapter on diphtheria, by giving Lovett and Munro's tracheotomy statistics and Dillon Brown's intubation statistics.

A chapter on influenza has been added. The author believes that the disease is caused by a specific germ. A section on amœbic dysentery has been added by the translators to the chapter on dysentery.

In the chapter on cholera the important rôle played by toxins in causing the symptoms of the disease is adverted to.

The chapter on malarial diseases does a great injustice in giving Marchiafava, Celli, and Golgi credit for discovering the *Hæmatozoon malaria*; we are glad to say that later in the chapter the translators properly credit Laveran with this discovery. It might be imagined that Strümpell was uncertain regarding the ætiology of these diseases, because he retains his old reference to Klebs' and Tommasi-Crudeli's supposed *Bacillus malaria*, to which no one nowadays attaches the slightest importance.

The translators might have enhanced the value of their brief chapter on typho-malarial fever by reference to the discoveries of Kinyoun and others of the *Hæmatozoon malaria* and the typhoid bacillus in patients affected with this disease. So, also, have they failed to make any reference in the chapter on yellow fever to Sternberg's important researches regarding this disease.

The chapter on septic and pyæmic diseases takes advantage of the latest discoveries in calling attention to the fact that, while it is not probable that all the septicopyæmic diseases are identical, still septicæmia, in the narrower acceptation of the word, corresponds more to an intoxication of the body, whether due to the toxins of organic metabolism [putrefaction of the author] or to those generated by the pyogenic bacteria.

A description of Pasteur's method of treatment has been added to the chapter on hydrophobia. And in the chapter on malignant pustule the method of attenuation of the anthrax bacilli is referred to.

The chapter on tuberculosis of the larynx now refers to the local treatment with lactic acid and with balsam of Peru, but it does not seem to us that it is to surgery rather than to endolaryngeal manipulations that we must look for the best treatment of this condition. Surgery has not a brilliant record in the treatment of the local manifestations of tuberculosis; in fact to-day it is yet pursuing experimental investigation of the subject, and laryngotomy would serve to remove but a part of the diseased tissue. It seems as if this chapter might be omitted, like that on syphilis of the larynx, that was in the first edition.

Strümpell is not prepared to say that there is absolute proof that the *Diplococcus pneumonia* is the genuine cause of pneumonia. In the treatment of the disease, he states, antipyretics are seldom useful, though antipyrine is to be preferred if any antipyretic must be used. We do not believe it is preferable to acetanilide; we are surprised to note the omission of any reference to the administration of apomorphine; and the doses of strychnine mentioned can usefully be employed much oftener, and in ordinary pneumonia as well as in that of alcoholic persons.

In the chapter on tuberculosis directions for staining the bacillus have been incorporated.

The criticism of the translators on the uselessness of an exploratory and an operative puncture in the treatment of pleurisy with effusion is merited.

The former brief section on actinomycosis has been expanded into a chapter in the present edition.

Attention is directed to the fact that any micro-organism may cause acute endocarditis. Brief references have been added in the section on congenital heart diseases to patency of the foramen ovale, to defects in the interventricular septum, to persistence of the ductus Botalli, and to congenital mitral and aortic stenosis. The employment of baths in the treatment of valvular heart disease is commended, and there is a description of the mechanical treatment of circulatory derangements advanced by Oertel.

The subject of the examination of the contents of the stomach by means of the stomach-tube has been rearranged, and

sections on hyperacidity and supersecretion of the gastric juice and on melæna neonatorum have been added. The chapter on gastric hæmorrhage has been omitted from this edition.

It seems to us that the editor is justified in his criticism of Strümpell's insistence on the necessity of a wet nurse, especially in consideration of the advances in the preparation of artificial food for infants.

In the chapter on typhlitis and perityphlitis the editor calls attention to the inconstant relation of the appendix to the cæcum. He commends a plan of treatment for this disease recommended by Dr. Sabine; food is abstained from until the temperature is normal, water is given freely, and stimulants are sparsely allowed, morphine is given in doses of about an eighth of a grain when there is pain or restlessness, no attempt to move the bowels is made, and a hot poultice is applied over the abdomen. This plan limits peristalsis, delays tissue metamorphosis, and secures bodily and mental rest.

In the chapter on stricture and obstruction of the intestines the translators urge early recourse to laparotomy.

A section has been added describing acute febrile jaundice.

Strümpell suggests that the term "articular neurosis" is more suitable than "articular neuralgia" for cases in which there is neuralgia of the joints.

The editor calls attention, in the chapter on habitual headache, to the necessity of determining in every case of persistent headache whether there is astigmatism or hypermetropia.

In the chapter on disturbances of motility reference is made to the use of the absolute galvanometer and to the faradaic reaction of degeneration. Very brief references to tic convulsif, to acromegaly, to ataxic paraplegia, to myriachit, to paramyoclonus multiplex, and to electrical chorea have been added; and Herter's table showing the functions of the segments of the spinal cord at the level of the various nerve roots has been introduced.

In a brief note on Morvan's disease the editor states that it is merely myelosingosis associated with neuritis; indubitable cases of the latter disease have been reported as Morvan's disease, and Zambaco Pasha has called attention to the fact that the patients whom Morvan originally reported as suffering with analgesic panaritium were actually affected with anæsthetic leprosy; so the theory of this identity is untenable.

A summary of the focal symptoms of tumors in different parts of the brain has been inserted. We are surprised to note the editor's apparent sanction of the excision of epileptogenous cortical foci.

The chapter on tetanus is made to conform to our present knowledge by the addition of a reference to the *Bacillus tetani*.

A chapter on the traumatic neuroses and one on acute poliomyelitis have been added.

Many of the chapters in the volume have been rearranged and minor facts inserted. The translators have made the occasion of the appearance of a new edition an opportunity to modify a number of expressions, thus perfecting the literary style of the work. The new edition merits an increase of the popularity that has been accorded its predecessor.

A Treatise, Practical and Theoretical, on Cancers and the Cancer Process. By HERBERT SNOW, M. D. (London), etc., Surgeon to the Cancer Hospital. London: J. and A. Churchill, 1893. Pp. xlii-371.

THE writer's position in the Cancer Hospital of London has given him exceptional opportunities for the study of this dreadful and dreaded disease, and his book is an outcome of his experience there. We think he would have done better to entitle

his book *A Study of Malignant Diseases*. It is not creditable to physicians as educated men that they cling so persistently to these ancient terms which are so often used arbitrarily to express the fancy of those who originated them. The author's definitions are clear and terse. There can be no misunderstanding such a statement as this: "Practically every cancer is but a mass of actively growing cells." With regard to the etiology of the disease, a subject which is just now evoking the most earnest discussion and investigation, he is disappointing. He objects to the microbic theory of its origin, and thinks there is no evidence to favor the parasitic nature of the bodies described by Armand Ruffer as "parasitic protozoa." The enormously important work in this field which has been done by Metschnikoff, Adamkiewicz, Sawtschenko, and others, chiefly Russians, is not mentioned. He lays great stress upon the influence of the nervous system in causing malignant disease, pointing to the preponderance of cases in the breast and uterus to establish his statement. But unfortunately a very great number of these cases do not occur in women who are excessively emotional or at a time of life when the emotions are most active. Besides, a history of irritation and irritants is so common in all forms of the disease, and in either sex, that his argument is not well sustained. His classification of the disease into nine forms with genera and species is complicated and neither so scientific nor rational, we think, as a classification upon an anatomical and histological basis. We are glad to see that he has called attention to the fact that a considerable number of the so-called benign neoplasms take on malignant changes, and it is well to impress decidedly upon the profession the fact that the line of distinction between benign and malignant growths is extremely difficult to fix; hence the necessity of early and careful attention in all forms of new growth. In his remarks concerning treatment he expresses approval of the extensive use of the cautery, both actual and chemical. In this we think he is correct, and it is probable that the exclusive use of the knife is responsible for not a few failures which might have been obviated by the use of other means. His chapter on cancer of the uterus is not very satisfactory. So much has been done in this field, such extensive additions to our knowledge have been made, especially by German operators, if not always with such results as could be desired, that it would seem as if a more exhaustive treatment of the subject might have been expected. A considerable number of very excellent plates illustrates the histological peculiarities of the various forms of the diseases described.

Cholera: its Causes, Symptoms, Pathology, and Treatment. By ROBERTS BARTHOLOW, M. D., LL. D., Emeritus Professor of Materia Medica, General Therapeutics, and Hygiene in the Jefferson Medical College of Philadelphia, etc. Philadelphia: Lea Brothers & Co., 1893. Pp. vii-13 to 132.

THE author has sought to make a practical book in the smallest compass, avoiding historical accounts of successive outbreaks and disquisitions on disputed etiological points. In his first chapter, on the history of cholera, he properly characterizes cholérine as an unscientific term when used, as it sometimes is, to denote a mild form of cholera that may develop severer symptoms; as there is no case of cholera without the spirillum, the presence of this organism makes the case of supposed cholérine one of cholera. The name cholérine might be properly applied to those sporadic cases of choleroïd disease, sometimes also appearing in circumscribed epidemics, that have been observed in various parts of this country and have caused Dr. Bartholow to believe that the comma bacillus has become naturalized here and maintains itself, if but feebly. As he truly states, only a proper bacteriological investigation can set-

tle this question, and such an investigation was made last December in a supposed outbreak of cholera at Little Rock, when the absence of the cholera spirillum was conclusively demonstrated.

There is a slight error on page 17 in the statement that when the third case of cholera appeared in Havre, on August 3, 1892, the disease was already existent in epidemic form in Hamburg. The first case of cholera in the latter city appeared on the night of August 14-15th, and the disease became epidemic immediately thereafter. It seems to us that the statement on page 20 that "when Hamburg was attacked with cholera no communication could be traced with any infected locality" is likely to give the reader the impression that the Hamburg epidemic originated *de novo*. Such a position is untenable, for Reincke, the chief of the Hamburg health department, stated that there had been a number of Russian immigrants in Hamburg who had come from suspected localities; and that city had been, previous to the appearance of the epidemic, in communication by sea with Russia as well as with France, in each of which countries cholera existed.

The author considers at sufficient length the two facts of supreme importance in the ætiology of cholera: the influence of bad hygiene—State, municipal, and personal—and the influence of the cholera spirillum. The predisposition of food purveyors to become affected with cholera, to which the author refers, seems to be explicable by the facts that flies, as Sawtschenko has shown, may diffuse the microbe, and that the latter easily propagates in the insects' intestinal canal.

The symptoms and pathology of the disease are described separately in a brief and comprehensive manner.

The final chapter, on the treatment of cholera, gives the prophylactic measures, including quarantine and the latest therapeutical methods in vogue in India, Europe, and America.

The volume is written in the author's usual pleasant style, and will satisfy the desire of any one that wishes to obtain the most recent information on the subject.

Manual of Practical Medical and Physiological Chemistry.

By CHARLES E. PELLEW, E. M., Demonstrator of Physics and Chemistry in the College of Physicians and Surgeons, New York, etc. With Illustrations. New York: D. Appleton & Co., 1892. Pp. xiv to 314. [Price, \$2.50.]

This book is an extension and amplification by the author of thirty lessons prepared for the students of the Medical Department of Columbia College, first published in pamphlet form in 1889. It deals with all of the matters in physiological chemistry with which medical students should be familiar, and the general practitioner will find it the best book of its kind published in this country. The subject becomes every year of more and more importance, as the questions of digestion and assimilation, and the treatment of their disorders, become more complicated, and depend more upon our absolute knowledge of their chemical processes. Every one will be repaid by the careful study of this book, containing as it does chapters upon food-stuffs, the organic and inorganic constituents of the body, and upon the analysis of drinking waters and the urine. To many it will be rudimentary doubtless, intended as it is chiefly for beginners, but there are large numbers of practitioners who will find here much food for examination and thought. Some such book is indeed now indispensable.

An Introduction to Practical Bacteriology for Physicians, Chemists, and Students. By Dr. W. MIGULA, Lecturer on Botany in the Grand-ducal Technical High School of Karlsruhe. Translated by M. CAMPBELL, and edited by H. J.

CAMPBELL, M. D., M. R. C. P., etc. With Nine Illustrations in the Text and Two Plates. London: Swan, Sonnenschein, & Co.; New York: Macmillan & Co., 1893. Pp. vii-247. [Price, \$1.60.]

It is the author's purpose that this volume should serve as a short text-book for a course in bacteriology. The necessary outfit for bacteriological research is described, and instructions are given for examining living bacteria, for preparing nutrient media, for cultivating the micro-organisms on plates, in Es-march's tubes, by stroke or puncture, at high temperatures, and by anaerobic methods for staining the bacteria, spores, and flagella, and for mounting. Certain of the more important microphytes are described so that the student may recognize and study them. The volume is essentially a practical one that is not intended to supplant the larger and well-known textbooks on this subject, but to serve as a guide for students in biology and for physicians whose time does not permit of elaborate and extensive investigation of the subject.

Transactions of the American Association of Obstetricians and Gynecologists, vol. v, for the year 1892. Philadelphia: William J. Dornau. Pp. viii-529.

Transactions of the Southern Surgical and Gynecological Association, vol. v. Fifth Session, held at Louisville, Ky., November 16, 17, and 18, 1892. Published by the Association, 1893. Pp. xl-434.

THESE two volumes, covering practically the same ground, and the work in large measure of the same men, give a very fair idea of the industry and progress of American workers. The day is happily past when such workers can be referred to as either uneducated or unscientific. They are gathering the best that the world can give them and adding to it. These volumes also demonstrate that it is no longer to New York, or Philadelphia, or Boston that we are to turn exclusively for excellence and originality; development has been going on in all directions. This fact must have a most important bearing upon the welfare of the people of the entire country.

Miscellany.

Cholera in Calcutta.—At a meeting of the Calcutta Medical Society, held on May 10th, as reported in the June number of the *Indian Medical Gazette*, the president, Dr. Kailash Chunder Bose, read a paper entitled Some Points regarding the Prevalence of Cholera in Calcutta. He said:

"The early history of cholera is quite obscure, and the theory of its origin has been chiefly based upon the idle conjectures of the ancients, who in their feeble attempt to describe the pathology of the disease have linked it with their religion and dismissed the subject by simply attributing cholera to the vengeance of the gods and to the misfortune of the land where it makes its appearance. The Bishuchika and the Mohamoree of the Ayshed are in all probabilities the cholera of the English authors, but the description of the phases of the disease as given in that sacred work differs from the statements of the Western authors in more points than one. In one of the sacred books of the Chinese Whoongshwho describes a disease whose symptoms are in many respects similar to those of the Bishuchika of the ancient Hindus. The Mohammedan writers of the middle ages have also made mention of the disease and its outbreak in Egypt and Arabia, but the way in which they have treated the subject does not help us in the least in knowing the nature of the illness. Gaspar Correa, a Portuguese, was the first European who described an epidemic outbreak of cholera in Hindustan in the year 1503. Sydenham states that cholera morbus was

raging in London in 1676. From these records it shows that this direful disease was certainly known to the ancients, and that it has visited every country, not even the remotest islands and isolated populations excepted. I do not like to take up your time by going over the subject in detail, but will try to confine myself to facts which directly concern Calcutta. As no reliable history of the first visit of cholera to Calcutta can be had from authentic record, we need not attempt to trace it out. Dr. Macnamara, who has almost exhausted the subject, mentions that in 1781-82 cholera was very deadly in Calcutta, and the Government reported to the home authorities that it had pursued its course northward. Cholera, the most dreaded of diseases, has selected Calcutta for its home, and it is from here that its germs are sent to different parts of the world, where, under favorable circumstances, they grow and bear fruit. People who have no idea of Calcutta, the City of Palaces, will likely want to know the reason of its being the center of cholera, and for them it needs that I must give in a few words the geographical position of Calcutta and the habits of the people who reside in it. Calcutta lies on the left bank of the river Hooghly, and its height above the sea-level is only eighteen feet. Its site is decidedly flat, and its inclination is not toward the river, but toward the salt lake which lies on its east. Its soil is soft and moist. During drought the ground water stands from thirteen to fifteen feet below the surface level, while during rains it rises to the ground level. In Calcutta the summer is long and the winter short; May and June being the hottest, and December and January the coldest months of the year. The rainy season commences from the 15th of June, and lasts till the end of August. The average rainfall is 66 inches. The highest temperature is 100° F., and is generally in May, and the lowest temperature, in January, is 60° F. The climate of Calcutta is hot, moist, and therefore very favorable to the growth of all kinds of micro-organisms. The northern portion of the town is the most populous portion, and forms the native quarter. The southern portion is entirely occupied by the Europeans, and is therefore the cleanest and healthiest portion of the city. Of the people who reside within the city, only twenty-nine per cent. are born in Calcutta, and the rest have come from the various parts of the world. The construction of its buildings which adorn the city is very defective in the native quarter of the town, and rooms have been built quite regardless of the fundamental rules of hygiene. Nearly half of the northern portion of the town has been occupied by bustees or clusters of huts inhabited by the lower class of citizens. At the center of each big bustee you will find a tank or pond excavated by the landlord for the water-supply of his tenants. The tank is used for cleansing utensils of the bustee people; in it they wash their body and take their daily ablution, domestic animals are washed in the bustee tank, and the water of such tank forms their drink. The bustee men, from their idle habits, do not care to exert themselves for the supply of fresh water, which is only kept at a reasonable distance from their bustee. The arrangement of the huts in a bustee is altogether bad; the huts are raised in such a fashion as to preclude the intrusion of the sun and obstruct the perflation of air. A correct picture of a bustee can be had from the annual report of Dr. W. J. Simpson, the energetic Health Officer of Calcutta. It is usually from the existence of such bustees that the town is infected with diverse zymotic diseases, and the first case of cholera, when this direful disease makes its appearance in Calcutta, would invariably be from a bustee. Fifteen years ago, when I was attached to the Campbell Hospital, I invariably noted that the first case of cholera which was admitted into the hospital was either brought from a bustee in Manicktolla, or in Entally, and from the total number of cases admitted it was found out that nearly two thirds of the cases were in men who had recently come to Calcutta. Now it is time for us to consider from what sources cholera gets access into the town, and how far it is possible to ward it off. To achieve the first object would require much knowledge and careful study of the history of cases that come under treatment. In the year 1890 Dr. Simpson issued a form of certificate to be filled up by the medical attendant stating therein the cause, source, and duration of the disease under which death has taken place. I don't know what led the health officer to discontinue this practice. If these certificates were recorded they would have served a valuable document for the health officer in forming his idea of the cause and source of diverse epidemics, which now and then break out

in Calcutta and its suburbs. Of the sources through which cholera comes to Calcutta I would try to trace them under two heads: first, sources which are within the town—that is, *inborn*; and second, sources which spring up from extraneous causes. The first includes sanitary defects, of which I would beg leave to point out one or two here.

"Neglect of clearing out the streets has been followed by very bad results. In the African portion of the town, I mean to say Burra Bazar, the lanes and alleys are never cleared once in a week, and the deposit of refuse and *débris*, favored by the moist heat of the atmosphere, harbors diseases of diverse nature. Cholera and typhoid may spring up from this source alone.

"The underground system of drainage contrived to carry the sewer and waste water of the town is a process which, for many reasons, can never be carried into Calcutta without the fear of its being a source of ill-health and disease to the inhabitants of the town. I shall later on mention what relation it bears to the propagation of cholera. I admit that the city has undergone much improvement within the last twenty years, but still there remains much to be improved. It is not my duty to point out all the defects of our town, for they are well known to the health officer, who spares no pain or trouble to advise the corporation on these matters. But there are many things which, unless brought to the notice of the health officer, can never be attended to by him. For instance, the health officer may not know that, in the lanes of Burra Bazar, the *débris* is allowed to decompose and give off noxious gas which contaminates the atmosphere which the people of this district breathe. In case of death happening from typhoid, dysentery, cholera, small-pox, you will invariably find that the soiled rags, linen, and beddings are thrown recklessly on the street, and sometimes underneath, or in the immediate vicinity of the watering-pipes (hydrants), and there they remain until the domes who collect old rags for shipment to foreign countries remove them. Could any one of us form an accurate idea of the mischief which would arise from this source alone? In the houses of people who live in Burra Bazar, the old-fashioned well excavated in the immediate vicinity of privies or sewer traps still exists, and its water, though not used for culinary purposes, is used for ablution during the night when filtered water ceases to run through the pipes. In some of the houses reservoirs for storing filtered water have been kept in close proximity to the sewer trap. The cesspools and gullies are no less dangerous than the soiled linen of cholera patients. If any one of you present here doubts the existence of such nuisances in the heart of the town, and in the most paying portion of it, I would ask him to drive through the Shama Bae's Lane, Narain Pershad Babu's Lane, Armenian Street, Hunsucker Lane, and Cotton Street, and then he will be able to estimate the amount of evil wantonly allowed to exist through the negligence of the corporation. Carrying water by the bhisties, and supplying it to the people who live in lanes and alleys, where the pipe-water is not yet distributed, is a practice quite unsafe for the health and well-being of the people. Besides those just mentioned, there are many other sources of such evils which I have not time to mention, but which might also with propriety be included in this list. Of the sources which lie without the town and through which cholera often comes within it, none is more dangerous than the practice of getting milk through the *gallas* who live in the suburbs of Calcutta. I occasionally come across cases of cholera where bad milk had been the cause of the disease. If you all believe in the germ theory of cholera, you can not but believe that milk is the best medium through which the bacilli could get access into the system. There is a class of men who only take raw milk in a certain number of days in the month, and the chances of their falling victims to the disease are always very great. Dr. McLeod, while lecturing on milk before a large and influential body of gentlemen, has left nothing on the subject, and any further discussion on it would, I am afraid, be mere repetition of the arguments already urged by the learned professor. Does boiling prevent the growth of the micro-organism? The itinerant confectioners who come from the adjoining or distant villages to sell sweetmeat have sometimes brought cholera with their sweets. Calcutta being the center of commerce, where thousands of men daily come from various parts of the world, it becomes a difficult task to enumerate in one place the numberless factors of cholera, from which it may at any moment develop and spread over. Besides those just mentioned, there remain a few others

which require a passing notice. We all know that the use of filtered water during an epidemic of cholera is of more value than hundreds of therapeutical agents sprinkled over the town to prevent spread of this disease, and this filtered water has, in many instances, been denied to the people by the corporation of Calcutta. It was only the other day cholera broke out in a bustee in Mooktarām Babu's Street; this bustee was supplied with filtered water. The landlord could not pay his water-rate in due time. The water connection was cut off when cholera was existing within the bustee, and two or three patients were laid up with it. The medical inspector with his usual remarks applied to the authorities for the immediate reconnection of the water-pipe, but the authorities could not find a provision under which they could connect the pipes before the payment of arrears of rent. Another case similarly appalling, but at the same time quite amusing, lately occurred in the Jorasanko division of the town. Here the water connection of a cholera-stricken house was cut off for the debt of another individual who lived in the adjoining house. I need not now tire your patience with the description of the municipal arrangement of our town, but would at once revert to the question of cholera which forms the principal subject of our discussion.

"Cases of cholera have been reported to have occurred from the use of some special kind of food, such as stale or preserved meat, crabs, lobsters, and other shell-fish. Over-ripe and unripe fruits have been known to produce cholera. A respectable European family, consisting of six members, was reported to have taken over-ripe papais, and suffered from choleraic symptoms, and one of the members died in ten hours. I know an instance where a young Bengali Babu indulged too much in mangoes and fell a victim to cholera. The symptoms in this case were quite unmistakable. Indiscriminate use of lichens and berries has been in many instances the cause of diarrhoea and dysentery, and sometimes their use has been followed by cholera. Two young girls, sisters, were brought under my treatment for purging and vomiting said to have been the effect of indigestion brought on by the free use of watermelons. There were pieces of undigested watermelons in the vomited matter; the stools were slightly tinged yellow, but the patients were found to be sinking fast, and soon the stools became characteristic. In the absence of another case of cholera in the vicinity, I could only attribute the disease to the use of watermelons. These two cases, I am glad to be able to say, ultimately recovered.

"Green mangoes, plums, pineapples have often been known to produce gastro-intestinal irritation, and in isolated instances they have actually produced cholera. A young boy, aged eight, was placed under my treatment for cholera; he had cramps and spasms all over the body; his pulse, though not absent altogether, was still flickering and rapid; retching and vomiting were persistent; stools frequent and characteristic, but the urine never ceased to flow. The history revealed that he was taking the same kind of food with the other members of his house, but he took some green mangoes, which, as he said, upset him. His sister, a girl of five, who took some green mangoes with her brother, had acute dysentery, and had to be confined to her bed for ten or twelve days. The first stool she had after a full dose of ipecac contained, among other things, thin slices of mangoes.

"Dr. Payne, during his incumbency as the health officer of Calcutta, reasonably thought that if all the tanks of Calcutta were filled up with any kind of material, no matter whether it be town refuse or garbage, all possible chances of cholera could be removed. He carried his theory into practice. The result, however, proved abortive; for, during the process of filling up tanks, several valuable lives were lost from an outbreak of cholera in the neighborhood, so that where there was no cholera before, cholera was actually invited. From the subsequent results of this new procedure, we could safely infer that the learned doctor intended to remove one disease by the introduction of another of a still more formidable nature. Dr. Kenneth McLeod, who succeeded Dr. Payne, carried out tank-filling with great caution. He only urged for the obliteration of such tanks whose existence was calculated to be detrimental to the health of the neighbors. He was entirely against the use of garbage in filling up tanks. Dr. W. J. Simpson, the present incumbent, has clearly proved that by re-excavating filthy tanks he could greatly improve the condition of the bustee in which it existed. The Marcus Square in Machoa Bazar Street is an instance where

the condition of the bustee was surprisingly improved after the tank was re-excavated. Cholera and diarrhoea, which were yearly reported in this bustee, however, entirely ceased to exist.

"In Calcutta there is no special season for cholera. It may appear at any time during the year, but the most favorable season for its outbreak is summer. Before the introduction of the filtered water into the city the mortality from cholera during the months of March, April, May, and June was always very high. Elderly women used to read hymns and prayers in honor of the presiding deity, and great restriction of diet was observed. Potatoes, pumpkins, melons, rotten fish, etc., were scrupulously avoided. The advent of rains was looked upon with great eagerness, for it was the common belief of the people that cholera will disappear with the appearance of rains. During winter the city was perfectly free from the ravages of cholera. But a great change has taken place since then. October, November, December, March, April, and May are the favorable months for cholera. Whenever there is a sudden transition in the atmospheric temperature, cholera is almost sure to make its appearance. I have always noticed that cholera and the *Hori* festival of the Marwaris are linked together. You would invariably find cholera creep into the bustees of Burra Bazar during *Hori*, which lasts for at least seven days. This festival comes off on or about the 10th of March. It is generally during this festival people recklessly expose themselves to the influences of diseases. They take off their warm clothing and put pounds of red powder on their body which prevents the action of the skin. The red powder is known by the name of *galal*, and is prepared from the best kind of logwood. On account of the high price of the logwood, another powder, which is called *ahur*, has of late been introduced into the market to meet the demand of the poorer class of men. The *ahur* is prepared by the admixture of magenta and arrowroot in their various proportions. The powder is freely exchanged among people who observe the *Hori*. The usual place, where the amusement of dusting the red powder on the face and eyes of friends takes place, is on the terrace of the house and in the public road. It is more commonly on the terrace of the houses these people throng themselves quite regardless of the sun or rain. They drink *bhāng* to excess and only use sweets and pastry as their food. They keep up nights in debauchery and in the morning they take *bhāng* in full doses, and then as the sun rises they pour colored water on their body, which is sometimes besmeared with the dirt and filth of the streets. These irregularities are followed by serious illness. Cholera creeps in insidiously and attacks the debauchees by dozens. If a correct record be kept you would find that cholera among the people of Burra Bazar is introduced with the advent of *Hori*, a festival which ought to be removed by law.

"Whenever and wherever there has been congregation of men there have been deaths from cholera. In Orissa, where the gathering during the Rathjatra is always very great, the death-rate from cholera in that province has always been inconceivably great. Of the pilgrims who repair to the spot nearly one fourth of the number die there. Most of those who return to Calcutta are counted either as convalescents from cholera or still suffering from the sequel of the disease. It is after the return of such pilgrims that we get reports of cholera from different sections of the town. Formerly during the Kumbh *mela* at Hurdwar pilgrims used to die in hundreds, but since the authorities have enforced certain sanitary rules the mortality has been greatly minimized. There was no casualty during the last *mela*. The report given by Dr. Simpson regarding the outbreak of cholera in Calcutta during the Ardhodoya is replete with informations from which inference may be satisfactorily drawn on the point now under discussion. In Tarakespur and Byjnath, where pilgrims gather at the end of every Bengalee year, cholera invariably breaks out in an epidemic form during the *mela* and disappears after the festival is over.

"I do not know what the people in other sections of the town do with regard to the disposal of the cholera evacuations. In sections D E and G H people do not observe any special rule in removing the discharges from a cholera patient. The stools and vomited matter, as I have said before, are thrown on the public streets when they are collected in separate basins; but in case where such stools are passed on the bedclothes and on the floor, as is often the case, a thin layer of moist earth or ashes is sprinkled over them and allowed to stand over

for hours and then washed away with a small quantity of water. When cholera occurs in mercantile shops the shopkeepers minimize their labor by stretching gunny bags underneath the patient and keeping them in position until the patient is thoroughly cured or removed by death. The soiled bags when sufficiently dry are utilized in shipping cargoes to various parts of the town. Some dispose of them at a cheap rate to hawkers. As regards the soiled woolen stuffs and costly cotton fabrics, they are sent to the dhobies for washing, and the dhobies carry the seeds in different directions.

"Theoretically speaking, cholera is contagious and segregation of the sick is absolutely necessary to prevent its spread, but experience has taught us to negative this theory, and I know of instances where people who closely attended upon cholera patients were never affected with the disease. In the wards of the Campbell Hospital cholera patients were kept in one row with the other cases, and no patient was ever reported to have caught the contagion. Similarly in the Medical College Hospital the cholera and the accident wards were separated by screen partitions, and still there was no spread of the disease. The nurse of the cholera ward, who was always attentive and kind to the patients, was never known to have suffered from any slight indisposition for a single day; on the contrary, she enjoyed excellent health and was the strongest of her batch. It is a common practice among the natives of this country that they flock round the sick-bed, and still they do not carry the infection. I knew an instance where a fond mother closely nursed her three children down with cholera, and subsequently died of it, but still the mother escaped. What could be more favorable circumstances for the development of the micro-organisms than those under which the bereaved mother was placed? Her hands were actually soaked in cholera stools for hours, and still she had no symptoms of the disease. It is needless to multiply instances; enough it would be to say that cholera is not communicable from man to man, and is therefore not directly contagious. It can only develop when the micro-organisms get access into the alimentary canal of an individual pre-disposed to its influences. I do not believe that micro-organisms could enter into the lungs and develop symptoms.

"We can not put reliance on the mortuary returns of our city. The cholera and tetanus columns of the register have been reserved by the registrar of deaths to fill them up during emergency; when the cause of the disease is not forthcoming he would at once put it under the column of cholera. In cases when an infant body is brought before him he puts it under the head of tetanus. I had a melancholy occasion to go to the burning ghat, and during my short stay there I noted the irregularity and reported the matter to the health officer. Several deaths caused by the reckless use of strong purgatives have been recorded as deaths from cholera.

"It has of late been conclusively proved that cholera is due to the presence of a specific micro-organism in the system, and this micro-organism has been detected in the evacuations of cholera patients or in the intestines of those who have died under it. This specific germ has been designated by Koch as comma bacilli on account of its comma-like shape. Its nature and the mode of its cultivation have been given in the standard works on the disease. The germ theory of cholera has been universally accepted, but there are disputes regarding comma bacilli being the specific micro-organism of cholera. Klein and other workers have ignored this positive assertion of Professor Koch. Professor Cunningham has strong reason to disbelieve the arguments urged in support of comma bacilli. The germ theory is not original, and nobody could claim that he was the first man who worked in this direction. Whatever progress the germ theory has made in the literature of cholera, it is in reality an idea taken from the ancients. The pathologists of the eighteenth century had also worked on this tract, but with their comparatively less knowledge of the microscope they failed to discover the micro-organisms. Who do not know that there are myriads of micro-organisms floating with the motes on the air we breathe, and who do not know that we constantly swallow micro-organisms and digest them before they get sufficient time to develop ptomaines within our system? Professor Hünigberg, a German worker, came down to Calcutta more than a quarter of century ago to study cholera. He opened a big hospital in Jorabagan to receive patients in all stages of the disease. The treatment he adopted was the injection of quassa hypo-

dermically; evidently he did it with the object of killing the micro-organisms, for quassa is a poison to all lower organisms. The result of his treatment was anything but satisfactory, and the philanthropic gentleman ultimately left the country. The laurel reserved was for Professor Koch, who discovered the special micro-organism in the discharge of cholera patients.

"They [the micro-organisms of cholera] have been found to thrive well in an alkaline medium, with a definite amount of heat and moisture. When the stomach of a person fulfills all the conditions necessary for the development of comma bacilli, it is then the person into whose system they have got access suffers from all the symptoms of the disease. Professor Koch has, after repeated trials, concluded that the comma bacilli are the specific micro-organisms of cholera. These bacilli under favorable circumstances retain their vitality for a much longer period than what they are generally supposed to do. They only wither at a temperature above 50° C. or at one below 15° C. Professor Koch has found by experiments that these bacilli are completely destroyed by any strong acid. Its cultivation is better conducted in sterilized milk and in well-water. The bacilli themselves are not capable of producing the symptoms, but the ptomaine they produce within the system has been said to be the cause of the disease. The question here arises how this ptomaine is generated within the system by these bacilli? Have we got any means to ascertain the composition of this chemical product, if I can call it so? Do diverse kinds of bacilli produce diverse kinds of ptomaines? Do we know the length of time which the ptomaine requires to act as ptomaine? We must be satisfied on these points first before we can accept such theories.

"Before accepting the theory of the comma bacilli we must try to know whether such comma bacilli have ever been discovered outside the field of cholera. Dr. W. J. Simpson, in his most interesting lecture on Pilgrims and Cholera, has distinctly said that he discovered comma bacilli in the water of Hurdwar, where there was not a single case of cholera. Comma bacilli have been found in the saliva of man. How would the learned supporters of the comma-bacilli theory explain or account for the following fact, which I beg leave to mention here: A party of twenty-two men went out to Kalighat to worship the goddess. They started from No. 9 Hunsucker Lane at about twelve noon and reached Kalighat at 1.30 p.m. They all put up in a hut situated on the border of a filthy tank. They used the tank water for cooking their food and some of them may have drunk this water. They ate one kind of food at about six o'clock in the evening; they returned to Hunsucker at 8 p.m. Between nine and ten in the night—that is, an hour or two after their arrival—nine members of the party had cholera, and nine died the next day. The rest—thirteen—who escaped, were opium eaters. How would you account for this unusually rapid growth of the bacilli and the rapid production of the ptomaine within the system? These people, I must mention, were fond of acids, and they must have taken sufficient quantity of acid with their food. If we are to believe in the comma-bacilli theory, we must satisfy ourselves by saying that these nine stomachs were in one condition.

"Professor Koch has said that these bacilli are entirely destroyed by the action of an acid medium. But most of the cholera cases happen in men who take lots of acid with their food and suffer from acid dyspepsia. I am afraid, gentlemen, I am tiring your patience, and therefore stop by bringing another fact for your discussion. Granting that comma bacilli are the specific micro-organisms of cholera, what becomes of the bacilli after the stage of reaction? I know that the answer you would give would be to this effect: that all the bacilli were wasted away in generating ptomaine. My next question would be that in native houses the beddings and utensils and the blanket kept on the floor of the room are not changed or removed until the patient is pronounced thoroughly cured and fit to walk about. What became of the convalescent patient and what would be the action of the fresh bacilli which have been rapidly growing within the moist bedding and blankets and freely entering into his system? If one attack of cholera does not offer immunity against another, how is it that the patient escapes from the second attack?"

The Reduction of Prolapsed Hemorrhoids.—In a paper entitled Brief Clinical Memoranda, read in the Section of Practice of Medicine

at the recent meeting of the American Medical Association, published in the *Journal of the American Medical Association* for July 16th, Dr. Henry D. Didana, of Syracuse, N. Y., said:

"Much suffering is occasionally the result of protruding piles. The victim usually manages, by taking compound licorice powder at night or some saline in the morning, to obviate constipation. Or he uses an enema after breakfast to secure a movement. The hemorrhoids descend, but they are replaced with little difficulty. Sometimes, however, they are very much enlarged or sensitive, and long-continued efforts to put them back prove a failure. The sufferer regrets that he has not heeded the advice of his neighbors and submitted to an operation. Regrets, however, are unavailing to give present relief. He sends for the family physician. The doctor works faithfully, inflicting much pain, and happily accomplishes his object. But not invariably. Now and then his best efforts are fruitless, and anodyne ointments and hot cataplasms are called to his aid. Meantime the suffering continues with little amelioration. The soothing influence of the applications becomes manifest after a long time, and the wretched tumors are put back where they do the least harm.

"A repetition of this misery and delayed relief is not an infrequent occurrence. Still, the long-suffering victim dreads a surgical operation of any kind, and tries to hope that each attack will be the last.

"Now, it may be some satisfaction to the doctor, as well as great comfort to the patient, to know a comparatively easy method of effecting reduction. This is it: Posture may be important, but the best one is not always required. In moderately severe cases the patient may be on his back with knees drawn up. If the hemorrhoids are very tender from strangulation and manipulation, cocaine should be applied till analgesia is fairly well established. Then the parts should be thoroughly lubricated with vaseline, and the tips of three or four fingers of each hand applied to the purple projections. Steady pressure is to be applied, while the patient is ordered to press down as he does in the defecation of hardened feces. Instinctively, and almost invariably, he shrinks and draws away from the pressure on the painful swellings, at the same time puckering the already too contracted anal orifice. But when he is made to comprehend that puckering renders reduction impossible, while resolute and persistent straining down relaxes and opens the orifice and allows the swellings to be forced back into the rectum, often semi-instantaneously, he will govern himself accordingly. Sometimes the performance can be terminated more speedily by having the patient assume a squatting posture, after the preliminaries have been attended to. Then the straining down seems to be more thorough and efficient, and the piles, liberated from constriction, slide homeward with little compulsion.

"This is the facile reduction of prolapsed hemorrhoids; and the patient can be taught to accomplish it early and easily without the aid of the physician."

The Old Country Doctor.—The following pen picture is taken from *The Christian Herald*, the journal edited by the Rev. Dr. Talmage. It is not signed with his name, but it bears an exceedingly close resemblance to his writing. Especially worthy of the eloquent divine is his peroration, where he says of the overworked old country doctor: "He deserves every kindness at our hands."

"Our country physicians," says he, "have so many hardships, so many interruptions, so many annoyances, I am glad they have so many encouragements. All doors open to them. They are welcome to mansion and to cot. Little children shout when they see them coming down the road, and the aged, recognizing the step, look up and say, 'Doctor, is that you?' They stand between our families and the grave, fighting back the troops of disorder that come up from their encampment by the cold river. No one hears such thanks as the doctor hears. They are eyes to the blind, they are feet to the lame, their path is strewn with the benedictions of those whom they have befriended. One day there was a dreadful foreboding in our house. All hope was gone. The doctor came four times that day. The children put away their toys and all walked on tiptoe, and at the least sound said 'Hush!' How loudly the clock did tick, and how the banister creaked though we tried to keep it so still! That night the doctor stayed all night. He concentrated all his skill upon the sufferer. At last the restlessness of

the sufferer subsided in a calm, sweet slumber, and the doctor looked up and smiled, and said: 'The crisis is passed.' When propped up with pillows, in the easy chair, she sat, and the south wind tried to blow a rose-leaf into the faded cheek, and the children brought flowers—the one a red clover top, the other a violet from the lawn—to the lap of the convalescent, and Bertha stood on a high chair with a brush smoothing her mother's hair, and we were told in a day or two she might ride out, joy came back to our house.

"And as we helped the old country doctor into his gig, we noticed not that the step was broken, or the horse stiff in the knees, and we all realized for the first time in our life what doctors were worth. Encourage them. They deserve every kindness at our hands."

The Bhau Daji Treatment of Leprosy.—In the *British Journal of Dermatology* for July Mr. Stanley Boyd says:

"Mr. Bhau Daji was a graduate of the Grant Medical College, Bombay. I am informed that one of his teachers, the well-known Dr. C. Morehead, suggested to him that he should study the treatment of leprosy. Accordingly Bhau Daji began a series of careful observations upon the various remedies which had a reputation among the natives for the relief of leprosy. He commenced work upon the subject before 1859, when Dr. Morehead left India, and, in 1862, I find a note of his having stated to Dr. Duff, of Calcutta, that he was trying a remedy in his 'charitable dispensary at Bombay which offered a hope even for lepers.'

"About 1868 letters from people who believed that they had been cured of leprosy by Bhau Daji began to appear in the Indian newspapers, and occasional articles in the *Times of India* show that there was a good deal of acrimonious discussion going on upon the subject of these 'cures,' and upon the propriety of Bhau Daji's action in keeping secret his method of treatment. Naturally medical men were very skeptical as to the reality of the cures, and the *Lancet*, 1868, vol. ii, p. 238—in the same volume which recorded Dr. Bakewell's report upon Beaupeithy's cases—stated that, among the seventy cases of relief or cure with which the Bhau Daji treatment was at that time credited, not one cure had been fairly proved, and expressed the opinion that the mode of treatment should be made known.

"Bhau Daji, however, made up his mind that the value of his remedy should be proved beyond a possibility of cavil before he made it public property, and the testing of a remedy for a chronic disease like leprosy would evidently require some years. He accordingly raised funds and established a hospital and dispensary for lepers. Here accurate records in the shape of notes, photographs, and drawings of the cases under treatment were kept. While engaged in this work, in January, 1873, he had an attack of apoplexy, from which he never recovered sufficiently to be able to work. He died on May 30, 1874, and it was generally believed that his secret had perished with him.

"I have been credibly assured that up to the time of Bhau Daji's death his own brother, Narayan Daji, did not know the name of the remedy. But, probably fearing that the value of his work might be lost, Bhau Daji had told it to three European friends, in confidence. This condition all felt to be binding, until one of them, a civil servant of high position, after inquiring from Bhau's executors and children whether they had any objection to his making the remedy known, placed the matter in my hands, giving me at the time a specimen of the remedy, his original pencil notes of several cases made on September 19, 1868, accounts of several other cases which appeared in print, copies of two statements sent by lepers to Bhau Daji, and certain letters from Bhau Daji himself. I ought to remark that the gentleman to whom I am indebted for most of my information was well qualified to make observations in such a matter. A judge by profession, and accustomed to deal with evidence of all kinds, he had recently passed through an all but complete course of study in a London medical school, and his interest in scientific matters of all kinds was well known in Bombay.

"On looking through the evidence, I felt sure that it would be insufficient to convince any one, because the observations recorded were not continued long enough to prove the relief or cure permanent. I therefore used every endeavor to discover what had become of Bhau Daji's papers, photographs, etc., at his death. They are said to have

passed to his brother, Narayan, who survived him only six months, but beyond this I have been unable to trace them. A short time ago, however, I was so fortunate as to discover that a boy who formed the best case of supposed cure in my collection is alive and well, earning his living as a carpenter; and I have received some valuable information concerning two other patients from Colonel Wilson, the present Commissioner of Police in Bombay, who was so good as to inquire after them for me. With these items in hand it seemed to me that I had sufficient evidence to justify me in bringing Bhau Daji's remedy prominently forward, and in asking those who have the opportunity to give it a trial. I hope further that some of the patients mentioned may still be traced and notes of them sent to the *British Journal of Dermatology*. In this paper I give the names and addresses of patients who wrote to the Bombay papers testifying to the value of Bhau Daji's treatment.

"With regard to the nature of the remedy: My informant told me that Bhau Daji came ultimately to rely upon one substance—the oil of the *Hydnocarpus incobrains*, known among the natives as kauti—which he used both for internal and external administration. Sometimes he colored the oil to render it less easily recognizable. I have statements of the directions given by Bhau Daji to two patients—one European, the other native. From these I gather that in the early morning at 8-8.30, of the oil was taken in boiled milk, and it is said to be 'not bad to the taste'; then the patient was rubbed all over with the oil; after two hours the oil was washed off in a warm bath. Sometimes the oil was directed to be applied again, and kept on until evening, when the patient wiped himself and went for a walk until he perspired; in other cases no oil was applied after the warm bath until evening, when it was again rubbed in over the whole body, and the patient slept in it. The oil was applied also to affected mucous surfaces: for example, it was to be run into the nasal cavities. The patients were ordered to abstain from pork, beef, and fish; from all alcoholic drinks, tea and coffee; they were allowed as much milk, fruit, and vegetables as they liked; also butter, eggs, mutton, and fowl.

"No ill effects were noted in any case which I have come across. Irritation and vesication did not result. Some patients complained that it caused a sensation of hunger. A native clergyman recorded, from observations on himself and others, that the curative effects were best marked after one and a half to two months, when the swellings subsided, redness lessened, tubercles softened, and ulcers healed. Red or grayish spots, he said, assumed a dark hue and became black, then the skin turned to the colors natural to the patient."

The Prevention of Cholera.—At the recent meeting of the Medical Society of New Jersey Dr. D. C. English, chairman of the standing committee, presented the following hints to communities threatened with cholera:

1. Inquire into the sanitary administration in your community and give your most energetic efforts to secure its improvement.
2. Obtain the service of men of sterling character and superior executive ability as members of your board of health.
3. Require frequent inspections and scrupulous cleanliness of all places, public and private, particularly every street and alley; every sewer, drain, cesspool, vault, and pit; every dwelling, store, and office, including the plumbing; every yard, outhouse, and stable.
4. Cause all surface wells to be examined and close up those which are found to be polluted.
5. Establish or perfect a system for the daily removal and safe disposal, by fire if possible, of all garbage, sweepings, rags, and other domestic refuse.
6. Be prepared to skillfully and effectually disinfect, at public expense, all infected persons, clothing, baggage, vehicles, and premises. Cause a supply of standard disinfectants to be kept ready for use by the health authorities.
7. Exclude from the markets all unwholesome food.
8. Provide and keep in readiness a suitable hospital for communicable diseases, and make engagements with physicians and attendants in anticipation of the need of their services.
9. Instruct the people in regard to the nature of the disease; its mode of communicability; the value of thorough sanitation; how to live; what to eat; the importance of using recently cooked foods; the

necessity for boiling drinking water; the uselessness of deodorizers and the benefit to be derived from a liberal use of soap and water, and from pure air and sunshine.

10. Prevent the entrance of infected persons and effects into your community. Isolate every "suspect." Keep ready for reference Circular No. 45 of the New Jersey State Board of Health.

To arrest its spread after its first appearance in a community:

1. Provide competent employees to carry out rules and directions of physicians and board of health.
2. Promptly and completely isolate all cases of the disease, and also all "suspects."
3. Watch all apparently innocent diarrheas.
4. Thoroughly disinfect all choleraic discharges from patients before emptying into place of deposit. Completely disinfect all vessels, clothing, bedding, and everything used by the infected person or in the sick-room or house. Burn all garments and articles which are soiled by contact with the discharges.
5. In case of death of patient wrap the body in a sheet or blanket which is saturated with a solution of bichloride of mercury, 1 to 500, and pack the coffin full of quicklime. Bury the body privately, with no attendants except those necessary to insure proper burial at least five feet below the ground surface.
6. Give information to the public as to the existence and progress of the disease. Discourage popular fear. Provide free medical service for the poor and have it promptly rendered. Urge upon the people the greatest care in the selection of digestible food and its proper preparation by cooking; present the danger from the use of unboiled water; the advantage of avoiding all excesses. Especially urge upon the people the observance of the strictest cleanliness of person and surroundings.

Rudolf Virchow.—The *Lancet* for July 8th publishes the following address delivered before the San Francisco Medico-chirurgical Society by Dr. Levi C. Lane, professor of surgery in the Cooper Medical College:

"Among the names of men who have lived in the nineteenth century, and who are destined to live in human memory, is that of Rudolf Virchow. Most men who have earned distinction have done so by concentrating their energies in one direction; the striking characteristic of Virchow is that he has reached eminence along several lines, and so much so that had his labors been confined to any one of these he would still have made himself famous. Teacher, writer, pathologist, politician, each and all has he been, and in later years he has also been an investigator in anthropology and in archeology. The medical studies of Virchow were pursued in Berlin, where he had the great advantage of coming in contact with Johannes Müller, from whom he imbibed that inspiring enthusiasm for medicine which has since incessantly animated the receptive student. His successful career as a student soon indicated his fitness as teacher, and he would at once have been given a position in the faculty of the Frederic William University had he not at that time developed qualities which have ever since been predominant characteristics—viz., those of active political partisanship; in this rôle the part he has played has been a famous one, that of opponent to the policy of the Prussian Government, and this adverse position to the ruling power threw so many barriers in his way to advancement that he sought in Bavaria a more friendly field, and there he was honored with the professorship of medicine in the famous school of Würzburg, where he had once been student. At this period pathology was a field rich in truths awaiting the hand of discovery, although some work therein had been commenced, for observation had noted many facts; yet these lay without order in disjointed incoherence, ready for a master hand to unite them in logical sequence and to give them their true interpretation. The leading students and writers in England on this subject were James Paget and John Simon; forty years ago the writings of each of these were familiar to the medical reader. Much pioneer work had to be done before the pathologist could successfully labor, and this work was the task of anatomy. The anatomy of Galen where in error was revised by Vesalius, Eustachius, Fallopius, and others, whose researches were honored by their names being bestowed on some part of the human body. Each bone, muscle, nerve, and vessel

having been carefully studied, anatomical research appeared complete, when Bichat announced that these structures were susceptible of division into tissues. In the midst of the terrors of the French Revolution, in 1801, Bichat gave the medical world his remarkable work on anatomy, in which one finds the first systematic classification of the tissues composing the body. In its work of analysis, research passed from the tissues to their components; the hand of Bichat opened the way and pointed toward a new world—a world of the 'infinitely little,' as Pascal names the microscopic field which lies beneath man—in contrast to the immensely great one which lies above and beyond him. A great pioneer in the work of making necropsies and of observing and recording the changes of structure due to morbid action was John Baptist Morgagni, who wrote his observations in a famous book named *Adversaria Anatomica*, a copy of which I exhibit to you; the title literally signifies the daily jottings of anatomical observation. The *Lancet* many years ago adopted as a motto for its section headed 'A Mirror of Hospital Practice' the admirable lines of Morgagni, in which he says: 'There is no other certain way to know medicine except to have collected many histories of disease and of post-mortem examinations, of one's own work as well as that of others, and to compare these together.' The microscope, as an indispensable adjuvant in histological and pathological study, came into use slowly. The older generation was content with macroscopy; one generation ago the laboratory and the microscope came into general use.

"After a few years' connection with the school at Würzburg, Virchow was called to Berlin and made professor of pathology in the Frederic William University. During his connection with the Bavarian school he made himself a conspicuous figure in the medical world by the publication of an elaborate work entitled *Handbook of Special Pathology and Therapy*. Besides editing this work, Virchow was one of the most extensive contributors to it; it commences with a volume written by Virchow on The General Forms of Disturbance and Disease (in the body) and their Ways of Compensation. In this work the student will find one of the most exhaustive studies of the subject of inflammation. With the co-operation of a number of the leading medical writers of Germany, this encyclopædic work was continued for several years; among its writers may be mentioned Drs. Bamberger, Griesinger, Hasse, Lebert, Traube, and Hebra, each an authority on his subject. In his contributions to this work one catches glimpses of the future Virchow, especially in the chapters on Thrombus, Obstruction of Vessels, and Embolism. This encyclopædic work does not seem to have reached completion, although it contains seven large volumes. During its publication Virchow commenced his *Archives of Pathological Anatomy, Physiology, and Clinical Medicine*. In this journal papers on these subjects of great merit have appeared; in fact, the critical censorship of the eminent editor was such that the appearance of an article in the *Archives* was a guarantee of its excellence.

"In 1851 Virchow became one of the associate publishers of *Cantstatt's Jahresbericht*, a review of the progress of medicine in all parts of the world. This work consists of two large volumes, published annually, and containing a compend of what was published in each and every different language, during the preceding year, in every section of medicine. When in 1856 he was called to Berlin and given the appointment of professor of pathological anatomy in the Frederic William University he was thirty-six years of age, therefore in the prime of mental and physical vigor, and his connection with one of the first German universities offered him an opportunity for the exercise of his best powers as teacher, lecturer, and writer. To give him an ample sphere for the teaching of his specialty there was erected, under his supervision, it is said, a large building near the Charité Hospital, specially arranged for pathological work. In the winter of 1857 to 1858 this building was rendered famous by the delivery of twenty lectures, in which Virchow elaborated and presented his doctrines of cellular pathology. These lectures, of which there is a good English translation, introduced a new era in medicine; in a style singularly attractive they gave to pathology a definite and enduring form, depicting the changes which disease impresses on the tissues, the constituent cell being the prime factor in all the morbid processes. The connective tissue, hitherto viewed as an unimportant or inert contingent of animal structure, was by Virchow first shown to have most invaluable func-

tions as an agent of repair, furnishing elements for the restoration to integrity of diseased or injured parts; while, as a neoplastic factor, the cell, whether of connective tissue or of epithelial origin, was shown to be the leading agent in the development of sarcoma, carcinoma, and other growths. Although subsequent research has rendered necessary a revision of some points of these doctrines, yet, in the main, they remain in integrity despite the efforts of some who would fain subvert them. The publication in 1858 of *Cellular Pathology* was followed in 1863 by one of equal eminence—viz., the *Pathology of Tumors*; the latter may be considered as the supplementary completion of the former. The pathology of tumors was also delivered within a period of five months as a series of lectures to an audience of students and physicians, and only one with untiring diligence and supreme capabilities for work would, as Virchow was then situated, have undertaken such a task. He acknowledges that without the aid of the stenographer, who copied the lectures, the work would have been impossible. The labors of Virchow have not been confined to scientific work; he is a friend to popular instruction and has liberally contributed his quota in that direction. A few years ago, in conjunction with Fr. von Holzendorff, he commenced the publication of a series of addresses in popular form on subjects within the domain of literature, history, medicine, and natural science. To-day the work has nearly reached the number of seven hundred addresses; those which have relation to medicine or to natural science have been supervised by Virchow. Although these addresses are popular in character, they have yet been prepared by their respective writers with such care that the educated reader will be repaid for the perusal of any of them.

"To what has already been mentioned, Virchow has added other literary work, consisting of memorial addresses, papers on public hygiene, and on topics kindred to medicine; here, especially in the addresses on Schönlein, Müller, and on Goethe as a naturalist, he has given evidence that his pen is at home in a field far removed from the pathological. Virchow took an active part in the deliberations of the famous association founded by Oken and named the 'Society of German Naturalists and Physicians.' Before this society he delivered, in 1865, an address entitled *The Importance of the Natural Sciences and their Development in Germany*. In 1890, when the International Medical Congress met at Berlin, by unanimous consent of the medical profession of Germany, Virchow was selected without a challenging rival as the one most worthy of the coveted position of presiding over that body, and the chaplet then placed on his brow was stirred by no breath of envy, since it had the sanction of the medical men of all nations.

"By mental constitution Virchow is a controversialist; by precept and by practice he has taught that unless a man when unjustly attacked defends himself, he is lacking in duty; besides the defensive he has also taken a boldly aggressive part in scientific and in political assemblies. One of the noblest efforts of Virchow's intellectual life is an address delivered ten weeks ago before the Royal Society of England. The subject was the 'Position of Pathology among the Biological Sciences.' Though delivered from the rostrum where Faraday, Huxley, Tyndall, Buckle, and other representatives of the best intellect of England had stood, no abler address had ever been delivered there. It was an offering at a noble shrine of the best fruits of one of the ablest and most thoroughly trained minds within the domain of medicine. In English as polished as his native Teutonic, and with a modesty which is ever the close companion of greatness, in simple and almost impersonal terms he recounted his services to the science of medicine. Virchow has made the whole medical profession heirs of his doctrine, but his lines of work and methods of research have been pursued with especial zeal by some of his pupils. Among these may be mentioned Recklinghausen, Wegner, Orth, and Grauwitz.

"I first saw Virchow at his practical course in the post-mortem room; he entered in haste, almost breathless, and at once proceeded to his subject. The cadaver, frozen and in a room ice cold, was examined according to the plan laid down in his manual entitled *Sections-Technik*. In the use of his special knife, which he called the 'pathologist's sword,' he displayed wonderful expertness and faultless accuracy. Holding the brain in one hand he cleaves it in parallel planes, so that it is divided into many thin lamellæ, which, like a book, can be opened

and closed at any point, and the whole can afterward be replaced in the cranium with but little signs of mutilation. Thus proceeding, disease at any point can be discovered. On one occasion the head of a horse that had died of glanders was the specimen chiefly considered; this head, sawed through longitudinally so as to present the nasal cavities studded with ulcers, lay for an hour before him while he discussed the pathology of glanders. When the fatal character of the disease is considered, it is evident there was no small risk in thus standing over and breathing the effluvia from such a source of fatal contagion. How accurate was his knowledge of the parts he was to consider in his demonstration was shown on one occasion, when, for the purpose of microscopic work, I had removed the merest fragment from a cerebellum. He instantly detected it, stopped in his lecture, and administered a reproof to the unknown marauder. Carelessness or inattention on the part of the student was at once observed and often chided. One whose eyes wandered through the window to something outside was notified that if he saw anything more interesting than the lecture he had better retire.

"Time is all too short for Virchow; for the completion of the work he always has on hand the day should number more than twenty-four hours. Not infrequently he spoke three times in one day; once I heard him lecture in the forenoon and deliver a long political speech in the evening, and in the afternoon of the same day he was engaged in sharp debate in the Reichstag; and all this while carrying on the writings before mentioned. Political life evidently has a fascination for him, for while these lines are being penned the telegram comes that he is a candidate for re-election to the House of Representatives. As a speaker Virchow is exceedingly calm and deliberate, and whether before a class of students or a political club he is never carried away by the 'torrent, tempest, and whirlpool of passion,' but his uttered sentences, scarcely distinguishable from his written ones, are clear, forcible, logical, and convincing. In person Virchow is of average stature, his expression is that of extraordinary courage; his attention once drawn to you you feel as if he were fixing you in focus on the object-glass of his mental microscope. A few years ago the French Government, on the occasion of the death of Claude Bernard, deputed Gambetta to pronounce an *éloge* on the great scientist. This oration, replete with supreme eloquence, closed with the remarkable words: 'We now offer our salutations to Claude Bernard on his entrance into immortality.' The hand of Death had then closed the door against Envy; but a few months ago the world was witness of still greater salutations which greeted the ear of one still living; men of all tongues and all climes where medicine is a cultivated science sent gifts, offerings, and congratulations to Virchow on the anniversary of his seventieth birthday. Among the offerings was a medalion of gold, the coinage of the gifts of many friendly hands. But as form chiseled from marble and feature limned by the pencil are perishable, these gifts of art were surpassed by another offering; this was a sheaf harvested from the best fields of German medicine, composed of fascicles written by hands trained by the great teacher. This offering, 'the enduring produce of immortal mind,' was the most noble and imperishable of all, since it was wrought by the merciful hand of Medicine; and, besides homage to the master, it contained a solace to pain and disease, a perpetual heritage of our race."

Ganglionic Fever.—Moussous (*Rev. mens. d. mal. de l'enf.*, June, 1893) considers that the suggestion of Pfeiffer and Starck that there is a special form of fever affecting children from two to twelve years old, and characterized by enlargement of cervical glands, is useful, since it classes apart certain cases of fever in children in which the course is short and the prognosis good, although the symptoms for a time suggest tuberculosis or typhoid fever. The patient suddenly, or after a few days of *malaise*, begins to suffer from pain in the neck, headache, depression, and nausea and vomiting. It is found that the temperature is elevated, and that the glands in the submaxillary region, and behind the sterno-mastoid, and at the back of the neck, all or any, and generally on both sides, are swollen and tender. Frequently in the early stage the buccal mucous membrane is very red, but no active inflammatory condition of the pharynx or tonsils is to be detected. All symptoms may disappear in a few days, or the fever may persist and the pa-

tient begin to suffer from paroxysmal cough resembling whooping-cough, or from pain about the umbilicus, or from both. In some cases the liver and spleen are enlarged. Constipation is a constant symptom, and Starck suggests that the disturbance is due to absorption of poisonous material from the retained feces. Moussous is inclined to attribute more importance to the reddening of the buccal mucous membrane, supposing that it is due to infection by some pathogenic microbe which later infects the ganglionic system. The symptoms may continue for days after the constipation has been relieved. The paroxysmal cough is attributed to enlargement of the tracheo-bronchial glands, and in the two cases he records Moussous was able to detect dullness and harsh respiration in the interscapular regions. The belly-ache is attributed to the extension of the inflammatory affection to the abdominal lymphatics. Treatment has not appeared to have much effect on the course of the illness, and Moussous suggests that the pathology of the disease is not the same in all cases.—*British Medical Journal*.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

REASONS FOR THE
REMOVAL OF ABDOMINAL TUMORS.

By F. BYRON ROBINSON, B. S., M. D.,

CHICAGO.

PROFESSOR OF GYNÆCOLOGY IN THE CHICAGO POST-GRADUATE SCHOOL;
GYNÆCOLOGIST TO THE WOMAN'S HOSPITAL, TO THE POST-GRADUATE HOSPITAL,
TO CHARITY HOSPITAL, AND TO COLUMBIA DISPENSARY HOSPITAL.

(Continued from page 66.)

Abdominal Tumors produce Kidney Disease.—The kidney, in proportion to its size, has the highest nerve and blood supply of any viscus except the uterus. According to the recent investigations at Johns Hopkins University, the kidney is supplied only by sympathetic nerves. It is a common observation that abdominal tumors are followed by kidney disturbances; even the gravid uterus does not allow the kidney to escape its irritation. The kidney disease brought about by abdominal tumors is reflex. It is a physiological principle that an influence acting through the nerves alone can arrest all secretion. Minor degrees of irritation will suffice to increase, diminish, or change the kidney secretions. An irritation continued on an organ indefinitely and modifying its action may be sufficient to induce disease. Kidney disease resulting from abdominal tumors, from the very nature of the case, is chiefly chronic. The first point to consider as the initial step in chronic renal disease from abdominal tumors is partial or complete obstruction of urine flow from Bowman's capsule to the end of the urethra.

The second point to consider in chronic renal disease due to abdominal tumors is reflex irritation from distant viscera.

The third point of consideration in renal disease due to abdominal tumors is infection. As regards the first point—*obstruction*—the location and size of the tumor must be noted. A partially occluded ureter, through long-continued pressure, will cause renal disease. Under this head would be classed mechanical impediments to the flow of urine.

If the obstruction is sufficient it will create hydronephrosis. If the hydronephrosis is long enough maintained the kidney will secrete until blood pressure is acquired, and then in a few months atrophy.

The writer has proved by experiments on the dog's ureter that a ureter completely ligated will shrink a kidney to about one fifth its original size in five months.

The pressure of the tumor on the ureter is a silent process not often recognized by the attendant. The obstruction of the ureter is like the quietly growing intestinal stricture, which is rarely recognized until some terrible disaster reveals a long series of old pathological conditions. The main idea in the obstruction, however, is that it is partial, and by raising the difficulty of urine flow renal elimination becomes deficient. The blood then becomes waste-laden. If the obstruction is sufficient the result will be hydronephrosis, and being long continued (without in-

fection), the result is renal atrophy, as the writer proved by tying the dog's ureter.

The second point—*reflex irritation*—is more significant because it means that irritation from any viscus can be reflected on to the kidney over the renal plexus. The abdominal tumor irritates some contiguous viscus; the irritation quickly passes to the abdominal brain by way of the sympathetic plexus of said viscus, where the forces are re-organized and transmitted to the kidney. There is little doubt that the sudden rise of temperature from passing a sound into a man's bladder is due to reflex irritation transmitted from an oversensitive urethra. It is probable that the so-called urinary fever is reflex. It modifies circulation by inducing local anæmia and local hyperæmia. In this way nutrition quickly changes. Samples may be seen in strictures of the intestine or ureter where the walls above the stricture are greatly thickened. Reflex irritation from the tumor is important, as it alters renal secretion. The renal secretion may be (a) excessive, (b) decreased, or (c) disproportionate.

The chief point in regard to secretions in patients with abdominal tumors is a decreased or disproportionate secretion. It is common to observe a patient with a tumor to secrete a small quantity of urine heavily laden with salts. The amount of urine voided at times appears as an alarmingly small quantity. Natural reasoning from physiological and clinical bases attributes the decreased quantity of urine to the irritation from the tumor transmitted over the renal plexus. But autopsies on women who die of tumors prove it beyond the shadow of a doubt.

Disproportionate renal secretion from the irritation of abdominal tumors is also common. Albumin is the chief element found. But phosphates, urates, or sugar make up the varying scales of salts. Even the amount of water will vary within short limits.

The tumor from pregnancy is a common sample of disturbed renal secretions due to reflex action. Thus deranged renal secretion is frequently due to reflex irritation, depending on the presence of an abdominal tumor. The change in the secretion consists in increase, decrease, or disproportionate quantities. As each organ has its own distinct nerve plexus, so it should be understood that reflex action is carried along distinct anatomical lines.

As regards the third point—*infection*—in chronic renal disease from the presence of abdominal tumors a serious field appears.

The genito-urinary tract can be infected at any point from kidney cortex to urethral end. If the tumor presses severely enough on the urinary tract, a perforation will occur, and from this perforation infection will travel in either direction—toward the urethra or toward the kidney.

The result of perforation of the urinal tract will be nephritis and cystitis. The perforation is most likely to occur in the bladder, from which the infection ascends the ureters to the kidney. It is not necessary to have a large tumor to perforate the urinal tract; simply a suppurating focus is sufficient. It is not necessary to have a complete perforation of the urinal tract to allow infection to gain an

entrance, for the germs or their products (ptomaines) may penetrate a thin pathological wall. The final result of an infected urinary tract is urethritis, with parenchymatous or interstitial nephritis. The writer has observed some disastrous results from pyosalpinx perforating the bladder and intestines. It may here be noted that Doran, a most excellent observer, made post-mortem examinations of forty women who had died of ovarian tumors, and thirty-two had severe kidney disease. This means that eighty per cent. who died from ovarian tumors had kidney disease. No doubt the kidneys were diseased from the presence of the tumors. Obstruction, reflex action, or infection told the tale of renal disease from the tumors.

A good sample of obstruction, reflex irritation, and infection of the urinary tract is seen in cases of gonorrhœa in men which end in stricture and "catheter life." The stricture gradually arises in the urethra and marks the onset of obstruction to the urinary flow. This increasing obstruction induces constant reflex irritation, and yet the man is not subjectively or objectively sick. But now he begins "catheter life," which means infection. It means self-destruction by his own hands. Thus to obstruction and reflex irritation of the urethra he has added the fateful infection carried on his catheter, which too frequently makes the fatal march swiftly onward and swiftly downward.

The kidney suffers similarly from any abdominal tumor and chiefly by reflex irritation which passes from the abdominal brain by way of the contiguous plexus, where it is recognized and emitted on the large renal plexus to the kidney. The writer notes that those women who come to him for the purpose of having tumors removed have a very variable quantity of urea in the urine. At the Woman's Hospital the writer has the urea tested in every case of laparotomy, and the amount varies from five to eleven grains to the ounce. The tumor appears to play a significant rôle on the production of varying quantities of urea.

Abdominal Tumors produce Disease of the Digestive Tract.—It is probable that secreting or glandular organs suffer the most from abdominal tumors, because the main damage is through reflex action and the glands are the most highly supplied with (sympathetic) nerves. The digestive tract should be studied by means of (a) sensation, (b) motion, and (c) secretion. The slow, continuous pressure of abdominal tumors produces but little recognizable sensations from the digestive tract. Another point arises that from inexperience the patient can not localize the pain in the digestive tract, but refers it mostly to the abdominal brain; so that subjective sensations in the digestive tract due to tumors are of small value. As regards motion in the digestive tract in cases of abdominal tumors, one can say that in the great majority of fair or large-sized tumors motion is diminished and constipation is the rule. But the main study of damage of abdominal tumors on the digestive tract will be through the secretions. The secretions are altered in three ways: (a) they may be excessive, (b) they may be decreased, or (c) they may be disproportionate.

The final result is indigestion. The irritation from the tumor is carried on the plexus of any contiguous viscus to the abdominal brain, where it is reorganized and emitted

to the digestive tract over the gastric plexus, the superior mesenteric plexus, and the inferior mesenteric plexus. In any case the brunt of the forces end in the ganglia which lie just below the mucous membrane. The ganglia constitute what is known as Meissner's plexus, which rules secretion. If the irritation be of such a nature as to produce excessive secretion, diarrhœa may result. The excessive secretion will decompose and induce malnutrition.

It is common to observe in women with tumors spells of indigestion, and especially in times of excessive irritability. No doubt at such times the irritation assumes a prominence not experienced on other occasions. If the irritation is of such a nature as to decrease secretion, constipation will likely result. An inactive digestive tract is the forerunner of non elimination and a waste-laden blood. It is common to observe women with tumors to have almost no appetite for weeks at a time accompanied by constipation. No doubt the main chapter in altered secretion consists in what may be termed disproportionate secretions. The elements which make up the digestive fluid are not secreted in normal quantities; one element is deficient and another is excessive. The normal relations of acidity and alkalinity are changed so that constant fermentation arises. Again, from the irritation of an abdominal tumor individual organs do not secrete their normal quantity or quality.

The liver may secrete excessively or deficiently. The pancreas may do too much or too little. The irritation may cause segments of the alimentary canal to secrete excessively or deficiently and thus destroy the finely balanced secretion of the canal as a whole. The stomach or small intestine may by the irregular irritation do too much or too little or act irregularly. This produces decomposition in the fluid and fermentation results; such women are continually troubled with "wind on the stomach." Diarrhœa and constipation quickly alternate and the result is frequent attacks of acute indigestion.

Disproportionate secretion is the most frequent and disastrous, because the irritation from the tumor is irregular. It storms one day and sleeps the next. But the nature of irritation is to be inconstant and to rush pell-mell over the nerve plexuses or to assume a profound quietude. Irritation scampering over the plexuses month after month is sure to be followed by indigestion, malnutrition, anæmia, and the final ending of the poor patient is neurosis.

The subject of pressure of abdominal tumors on the digestive tract may here be considered. The effect of pressure acts in two directions—(a) on the alimentary canal and (b) on the tumor itself. The effect on the canal may be (a) to derange the secretion and motion of the segment pressed on; (b) to perforate the canal; (c) to obstruct the canal. The more serious effect of the tumor pressure on the digestive tract arises from the changes which result in the tumor itself. The changes arising in the tumor from the alimentary canal are: (a) inflammation, (b) adhesion, (c) suppuration, and (d) rupture. The main idea is that infection or its product (ptomaines) enters the tumor through the gut wall.

It frequently happens in laparotomy that some part of

the digestive tract is found firmly adherent to the tumor. The cause of this adhesion is the formation of exudates into organized tissue which binds the gut wall and tumor together. The irritation from the contact of the gut wall and tumor induces the passage of germs or their products (ptomaines) through the wall of the intestine, which gives rise to an exudate. The writer has fully satisfied himself that considerable inflammation, adhesion, and suppuration, which are found to exist in tumors, are due to the passage of the morbid matter through the intestinal canal.

It is not uncommon that one finds the gut attached to a tumor firmly from an inch to a foot in length when the great gateways of infection, the tubes, show no traces either ancient or recent. The vermiform appendix is a certain source of infection not only in abdominal tumors, but also is the source of much infection of the genital organs.

Considerable inflammation and adhesion of intestines (and occasionally other organs) when abdominal tumors exist is accounted for by infection passing through the gut wall into the tumor. As regards suppuration in abdominal tumors, due to infection arising from the alimentary canal, it may be said that suppuration is only a stage in advance of inflammation, and that inflammation is only a degree short of suppuration. So that in one sense they are the same process. In the case of inflammation the white blood-corpuscles have conquered the invaders and resented further progress, while in suppuration the invading infection destroys whole fields of vital tissue, leaving focuses of local death—necrosis. The pus formed by these infections through the gut wall may be safely evacuated by way of the alimentary canal. But frequent fatal issues follow either rapidly or through long exhausting processes.

The sympathetic pathological course which abdominal tumors induce in women are: (1) Irritation; (2) indigestion; (3) malnutrition; (4) anæmia; and (5) neurosis. The irritation passes by reflex action to the digestive tract (including the liver and pancreas). The irritation destroys in the digestive tract (*a*) the rhythm of the liver, pancreas, and alimentary canal by emitting irregular forces over the plexuses at irregular periods. The reflex action has no regard for rhythm. (*b*) The irritation produced by the tumor on the canal destroys its motion; (*c*) it destroys its sensation; (*d*) it destroys its normal secretion.

Indigestion is a natural result of imperfect rhythm, motion, sensation, and secretion of the alimentary canal. Long-continued indigestion results in malnutrition; malnutrition finally ends in anæmia. In anæmia the fluid tissue known as blood is deficient in its proportional constituents, and the innumerable nerve ganglia being bathed in waste-laden and impoverished blood, finally reduces the woman to an irritable condition or a neurosis.

(To be concluded.)

"Physiological Examinations of School Children of Washington are being made in order to determine the comparative rates of growth, influence of nationality, school hygiene, density of population, systems of physical culture, etc. Special measurements of the nervous system with the æsthesiometer, dynamometer, baræsthesiometer, and thermæsthesiometer are being made by Dr. MacDonald, to estimate the proper amount of study required, the proper age of advancement, etc."—*Medical News*.

A CASE OF ACUTE EMPYEMA OF THE ANTRUM OF HIGHMORE OF NASAL ORIGIN.

By JULIUS WOLFENSTEIN, M. D.,
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MR. H., aged about thirty, consulted me on April 26, 1893. The patient states that he caught a severe cold in his head two weeks ago which ran an ordinary course until within the past three days, when he noticed soreness of the teeth and pain in the cheek of the left side. At the same time there was also a profuse discharge of pus from the left side of the nose. There is also a feeling of soreness in this side of the nose. The pain on the left side of the face is considerable, especially at night.

On examination, the right side of the nose shows slight swelling and redness of the mucous membrane. On the left side the mucous membrane of the lower turbinated bone is so swollen that nothing of the interior of the nose can be seen. After an application of a twenty-five-per-cent. cocaine solution a considerable quantity of pus can be seen in the nose, particularly in the region of the middle turbinated bone. This is removed and the nose is thoroughly cleansed. The patient is made to lie on a lounge on the right side with his head toward the floor. After several minutes the patient is again examined, and pus can be seen coming from the middle meatus in the region of the ostium maxillare.

The test with the electric light in the mouth of the patient shows transillumination of the right side of the face. The left side is perfectly dark.

The patient was instructed to wash out his nose frequently with a solution of Seiler's tablets, and was given one fourth grain of codeine several times daily to relieve the pain.

May 1st.—The patient reports that the pain has almost entirely ceased and that the discharge from the nose is less. Examination of the nose shows lessening of the swelling and redness. The electric-light test shows beginning transillumination of the left side of the face. The same treatment is continued with the exception of the codeine administration.

15th.—There is still slight tenderness of the teeth and cheek. The discharge has entirely ceased for three days. Transillumination perfect on both sides. The patient was ordered to continue the washing out of his nose with the Seiler's tablets for several weeks. As the patient was compelled to leave the city at this time, I have not seen him since the last date, but I received a letter from him on May 26th, in which he states that he has had no further trouble to date, and that he feels perfectly well in every respect.

Acute empyema of the antrum of Highmore of nasal origin seems to be a rare affection, since little or no attention is given it in our modern text-books on diseases of the nose and its accessory cavities. Without any attempt at completeness in the review of the modern text-books on this subject, I will only quote two or three of the leading authorities on the subject to substantiate the correctness of this assertion.

Let us first take Voltolini, surely a high authority on the subject, for it is to him that we owe one of the diagnostic methods in empyema of the antrum—*i. e.*, the so-called "*Durchleuchtung*," or transillumination. In his work, *Die Krankheiten der Nase*, etc. (Breslau, 1888, p. 343), he makes no mention of acute empyema of the antrum of Highmore, and, further, he ignores the fact that this affec-

tion may be of nasal origin. He simply says that it is due "principally to diseased teeth or following their extraction."

Schech, whose well-known treatise on diseases of the nose is to-day considered as the very highest authority on rhinology both in Europe and America, mentions acute empyema of the antrum; but among the aetiological factors enumerated he does not include "catching cold"—that is, acute rhinitis—in the first two editions of his work, the second edition of which was published as late as 1888. In the last two editions of his excellent text-book he mentions briefly acute rhinitis as a possible cause of acute empyema of the antrum.

Bosworth, in his late work on *Diseases of the Nose and Naso-pharynx* (New York, 1889, pp. 465-479), treats of this subject rather indefinitely, and, while he admits the possibility of an acute empyema of the antrum as a consequence of acute rhinitis, he does not seem to be thoroughly convinced of the fact. He speaks as follows: "I think it is an exceedingly rare event that disease of this cavity (*i. e.*, the antrum) results by an extension of inflammation through continuity of tissue" (*op. cit.*, p. 466). And further: "An attack of acute rhinitis is not infrequently attended with symptoms referable to the maxillary sinus, and hence may be an exciting cause of suppurative disease of that cavity" (*op. cit.*, p. 468).

These two sentences appear to me, at least, to contradict each other. Bosworth first maintains that disease of the antrum, under which term naturally empyema is also included, is very rarely due to "inflammation through continuity of tissue." Then further in his article he asserts that acute rhinitis may be a cause of empyema of the antrum. As I understand the pathology of this affection, this can only occur by "inflammation through continuity of tissue." At least this is the generally accepted view of the modern authorities on this subject.

Without quoting any more authorities, the general consensus of opinion concerning the aetiology of empyema of the antrum seems to be that it is not often of nasal origin; and as regards the acute variety of this affection, most authors do not even mention a nasal origin. Those who do concede a nasal aetiology seem to have doubts on the subject, and very guardedly say it "may" occur.

This is the principal reason that I have detailed the above case: to draw the attention of the medical profession to the fact that acute empyema of the antrum of Highmore is not so rarely a result of an attack of acute rhinitis, and should be so considered in the therapeutic management of this affection.

Without going into any prolonged discussion of the whole subject of empyema of the antrum, I would like to call attention to a few points in the aetiology, diagnosis, and treatment of this disease which may prove interesting.

First, I would call attention to an excellent article on this subject by Browne, published in the May number, 1893, of the *Journal of Laryngology, Rhinology, and Otology* (Empyema of the Maxillary Sinus, etc., pp. 214-221). This excellent article gives, with few exceptions, the

views held on this subject to-day, and its perusal can be highly recommended to all who wish to be informed on this subject.

In this article Browne asserts that empyema of the antrum is often due to "catching cold," and, further, he claims that in several cases the symptoms of the affection led him to believe that the empyema of the antrum "was primary to and independent of, if not causative to, the inflammation of the nasal mucous membrane" (*loc. cit.*, p. 215.) While I certainly do not doubt the accuracy of Browne's observations, I believe he stands alone to-day in his conclusions that acute empyema of the antrum of Highmore due to acute rhinitis may be a primary inflammation and not secondary to already existing nasal pathological conditions. Hence his assertion must be accepted with some pardonable doubt, at least until further corroboration by additional well-observed cases of similar nature.

Browne certainly takes the correct standpoint in maintaining that acute empyema of the antrum is often the result of acute rhinitis. This is definitely proved in the case detailed by me above, but, contrary to Browne's opinion as to the primariness of the empyema and the secondariness of the nasal manifestations, the nasal symptoms existed fully ten days before any symptom of antral complication appeared. Another case, that of a colleague, came under my observation recently in which the ordinary nasal symptoms of an acute rhinitis were present fully two weeks before any symptoms of empyema of the antrum were present. I think with our present knowledge on the subject there is no reasonable doubt but that, firstly, empyema of the antrum of Highmore is often of nasal origin, and, secondly, that acute empyema of the antrum is not a rare affection, and is a secondary inflammation depending, in most cases, on acute inflammation of the nasal mucous membrane.

As regards the value of transillumination in the diagnosis of empyema of the antrum, I do not believe in condemning this diagnostic method, in the words of Schrötter, as "an elegant plaything," nor do I believe that it is as important an adjuvant in the diagnosis of empyema of the antrum as one would be led to believe from the writings of Voltolini, Heryng, and others. From my experience with transillumination, I do not consider it a "quite reliable diagnostic measure in antral disease" (Browne, *loc. cit.*, p. 218). In the case detailed it is true the transillumination test proved the presence of an empyema of the antrum undoubtedly, and with the amelioration of the condition and the lessening of the empyema the affected side became more and more transilluminated. But this case has in my hands been the exception to the rule, and I have very often found an absence of transillumination on one or the other side, or even on both sides, of the face where I was positive that there was no antral disease. This observation has also been made by many prominent rhinologists, and most of these observers could prove that, in many cases where a decided umbra was present on one or both sides of the face, upon opening of the antral cavity no pus was found. So that from a positive standpoint transillumina-

tion does not stand the test of practical application. In other words, there is not always empyema of the antrum present in a case in which the face is not transilluminated. It has been generally believed that the test of transillumination had at least a negative side which was of value. In the words of Ruault (quoted from Browne, *loc. cit.*, p. 217), "we can have opacity without empyema, but we can not have empyema without opacity." Even this statement of the value of transillumination no longer holds good. It is true it is rather rare, but it does not happen that empyema of the antrum is present, and, in spite of this fact, there is no opacity of the face.

In the case of a colleague, mentioned before, there were all the typical symptoms of an empyema of the antrum—the bright-yellow discharge from one side of the nose, pain in the cheek and teeth of the affected side, the presence of pus in the nose after cleansing the same, and then, allowing the patient to lie down for several minutes on the unaffected side with his head toward the floor—and still, to my great surprise, upon introduction of the incandescent electric light into the mouth of the patient, the affected side was most beautifully transilluminated, in fact, to a greater degree than the unaffected side.

Taking all this into consideration, it may be said that transillumination is of value in some cases to corroborate an already established diagnosis of empyema of the antrum, but that it can not be regarded as a reliable method in the diagnosis of antral empyema, particularly if the other well-known symptoms of this affection are absent.

I think its greatest value rests on the fact that in cases of well-established antral empyema we can judge of the progress of the disease, particularly of an amelioration of the condition, by the increasing transparency of the tissues, which is in direct proportion to their more or less normal condition. This same view is also entertained in the article by Browne (*loc. cit.*, p. 219). Hence transillumination is of more value as an element in the prognosis than as a method in the diagnosis of antral empyema.

In conclusion, I would add a few words as to the treatment of acute antral empyema of nasal origin. I do not pretend to draw any definite conclusions from one or two cases, nor do I wish to use that often fallacious method of argument of *post hoc, ergo propter hoc*. In the case mentioned frequent washings of the nose with an alkaline and antiseptic solution resulted in a cure of the empyema in two weeks. I do not maintain that the empyema disappeared so rapidly as a direct consequence of the treatment, but I do believe that in acute empyema of the antrum of nasal origin simple remedies should be tried first. To keep the nose clean and to guard the patient against any further extension of the nasal and antral inflammation seem to me to be the indications which should be followed in the treatment of such a case. Should there be no improvement in two or three weeks, then the more radical surgical measures are indicated. But the antrum should not be opened in a case of acute empyema of nasal origin until the simpler remedies have been given a fair trial.

THE NEUROLOGICAL CAUSES OF IMPOTENCE.

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The sexual act in man is usually described as being composite, containing both mental and physical factors, but in reality psychological acts are probably just as much the result of physical structure as any other function of the body, and therefore such a division does not in reality exist.

An impression produced upon one of the senses is carried inward to the ganglionic cells at the base of the brain or in the cord, and here may be at once arrested and reflected outward, or it may pass upward to the controlling or ideational centers of the cerebral cortex. The former happens when from lack of development, as in infants and idiots, or when through sleep or disease the controlling centers are inactive.

After we have learned to associate the different impressions thus produced by an object, we have formed an idea of it, and, after an idea is once so formed, the excitation of any one of the impressions of which it is composed is sufficient to call the rest into being.

Ideas in like manner become associated into groups forming trains of thought; the presence of one idea in the mind calling up another with which it is habitually associated, and which thus seem to spring into consciousness of their own accord.

In other words, thought is nothing but another expression of the reflex action of the nervous system, in which, when certain groups of cells have become accustomed to act together, the excitation of any one of them calls the rest into activity. The more often such an action takes place, the more easily, the more rapidly, and the more unconsciously it is done.

An impression thus conveyed to the ideational centers may there be perceived or become potential. We only habitually perceive impressions, unless they be very decided, which are in accord with the ideas which are at that time occupying the mind; but it is probable that no impression produced upon the cortical cells is ever lost, but it may be years before associated ideas recall it to consciousness.

This is especially marked in dreams where past and forgotten events start up; but here, by reason of the accustomed paths of ideas being dissociated through certain ones being at rest, they become associated in an abnormal manner, closely approaching the delirium of mania. Ideas, trains of thought, mental peculiarities may be inherited just as other physical ones are. In other words, we inherit certain groupings of nerve cells, which may then be modified by the individual's surroundings.

Ideas may arise in the mind from the promptings of the bodily organs, each of which has undoubtedly its controlling center in the brain, the disturbance of which modifies the tone of the mind or may even produce so much disturbance as to give rise to insanity.

What the influence of each organ is on the mind is unknown, for, with the exception of the genital organs, they

are all active at birth. It is in the genitals alone that we have the chance of observing the effect produced upon the mind from non-development of an organ; but this, like that of disease of the organs, is usually marked.

For purposes of study we may consider the genital system to be composed of three parts—the external genitals, the spinal center, and the cortical center—and it is with the disturbances of these last two that I wish to treat.

Before puberty both the spinal and cortical genital centers are incompletely developed, but still possess some functional activity. Involuntary erections occur in both young animals and children, and, with the exception of the first few years, children have a more or less complete idea of sexual matters, even when they can by no possibility have derived them from their surroundings. These inherited ideas are apt to undergo further development from association or the discovery that handling the organs gives pleasure.

When the time of puberty arrives the sexual centers enter into a more active condition. The cells begin to store up power in a potential form, which, when it has reached a certain degree of tension, gives rise to irritability and, if this be carried beyond a certain degree, to an explosion of force.

The two centers mutually react upon each other, but the cortical possesses a more or less complete inhibitory control over the spinal, and it is not until its cells become irritated to such a degree that their action becomes disordered or delirious that this power is lost and the lower center allowed to discharge itself. Irritation of the cortical center, then, may be produced in two ways—either through impressions conveyed by the special senses, or by reflex irritation due to irritability of the spinal centers, and at such times thoughts on sexual matters enter the mind without regard to our surroundings; and if the state occurs during sleep, when the inhibitory power of the supreme center is in abeyance, an explosion is apt to occur. The reflex irritation is, however, usually sufficient to cause a partial awakening of the cortical centers and more or less incoherent ideas enter the mind, forming a dream.

So great is the mental disturbance which occurs at puberty that insanity sometimes occurs, and even the healthy mind develops an emotional tone.

Impotence from nervous causes may be due to four conditions—to want of development, to exhaustion, to irritable weakness, and to perversion. In failure of development of the spinal center, the patient has the perfect development of the genital organs and ideas, but lacks completely the power of erection. Niemeyer gives the history of such a case: A man, aged thirty; strong and muscular. Genitals large and well developed. This patient never had an erection, and was divorced after being married one year.

Failure in development of the cortical center occurs as a part of the want of cerebral development in idiots, but I have been unable to find the history of any case in which it existed with normal development of the other centers, unless we class with these cases those women who seem to be totally without sensual ideas; but such a condition is perfectly possible just as it occurs with the other centers.

Removal of the testes before puberty is followed not only by an arrest of development, but by retrograde changes in both centers. Erections no longer take place and the mind of the individual becomes affected. "He becomes cunning, deceitful, destitute of moral sentiment, and his mental and bodily powers are impaired." Removal after puberty seems to have much less marked effect. Usually there is little or no mental change, and the power of erection may persist and even be exaggerated.

Exhaustion of the cortical center shows itself by loss of its inhibitory power over the spinal, as a result of which the spinal center discharges itself almost as soon as irritated, and producing little or no mental excitement in the patient; an orgasm occurring as soon as an erection has taken place, or even before.

A case of this kind was brought to me at the Brooklyn City Dispensary: A boy, aged sixteen years; habitual masturbator, in whom the slightest attempt to touch the penis produced an immediate erection and discharge without giving any feeling of pleasure to the boy. Exhaustion of the spinal center shows itself by the patient having the desire without the power of erection or orgasm. This condition must not be mistaken for those cases in which the loss of power of erection is due to local conditions of the genitals. These cases are very common and may be purely functional as the result of fright or overanxiety.

Impotence from premature discharge of the spermatic fluid may occur from the excessive irritability of the cells of either one or both centers. This may be due to two opposite causes: to prolonged continence, causing the cells to store up so much power that an explosion of force follows the slightest irritation, or to that excessive irritability of cell action (irritable weakness) which goes before degeneration as the result of overuse, the cells acting with sudden and delirious violence. Irritability of the cortical centers shows itself by such intense ideas being engendered by any reference to sexual matters that an emotion is created, and the inhibitory power over the spinal center is weakened and it is allowed to discharge itself. A case of this kind is now under the care of Dr. F. J. Magilligan. The patient is a young woman in whom the sight of a man produces an orgasm.

Irritability of the spinal center shows itself by such intense feelings being engendered in the genitals by any exciting cause that the orgasm occurs almost as soon as the erection has taken place. In a large number of cases this condition is a reflex one, due to local congestion of the genital organs. This and spinal exhaustion form the two most common neurotic causes of impotence in the male.

Sexual perversion may arise from three causes—from want of opportunity for normal gratification; in those cases in which sexual excess has exhausted the ganglionic centers, but the pervers find that by stimulating them in some unusual way he regains the lost pleasure; and it forms one of the forms of insanity. Both of the latter cases are due to an abnormal grouping of the nerve cells. In the second set it is due to certain groups becoming exhausted before the others, thus breaking up the normal paths of thought, while in the last this is inherited.

Perverts may be further divided into two classes: in one they retain the power of deriving sexual pleasure in the ordinary way, and in the other this is lost.

Masturbation is the most common and, as a rule, does not much harm beyond the moral effect which is produced by doing that which we believe to be wrong. Paget lays down the law "that masturbation does neither more nor less harm than sexual intercourse practiced with the same frequency and under the same conditions of general health, age, and circumstances." Gray: "I have never seen a case of any disease which has directly been caused in this manner." Dana: "Sexual excesses are usually the result rather than the cause of nervous disorders."

Masturbation is, however, for obvious reasons, more apt to be carried to excess than normal intercourse. It is often one of the evidences of the irritable weakness of the nervous system in the insane and may exist as a true psychosis.

Ten years ago a divorce was granted in this city on the ground that the husband had for over two years been in the habit, after retiring, of masturbating without once making any attempt at natural connection. Masturbation, if it is not the cause, is certainly an early and prominent symptom in one form of insanity. In boys it shows itself in an excessively hypochondriacal and egotistical condition. They become vain, selfish, and deceitful, without natural affection, and suspicious, often with delusions of persecution. In later life they are apt to be shy of women, but often fall in love, the thoughts of which lead to unnatural gratification. If they do marry, it usually ends in suicide or divorce. They may remain in this condition, or become actually insane. Their vanity increases and becomes offensive. They lose all moral feelings, and yet express exalted sentiments and superiority to all men. Visual and aural hallucinations are common, and with these they may have strange bodily sensations, which they ascribe to electricity or hypnotism. They may fall into a pseudo-trance, ecstasy, or catalepsy, often with visions of a religious character. In these cases suicidal and homicidal impulses are not uncommon. I had a case of this kind under observation in the Kings County Hospital.

J. Q., aged twenty-six years, single. Mother now in an insane ward. Addicted to masturbation. Present condition of one month's duration. Lies in bed with eyes shut. Moves no muscle except eyelids, which are in constant tremor. Apparently unconscious. Sometimes upon placing the limbs in any position they will remain so, especially when he has a number of observers. Eyeballs rolled up. Pupils dilated. Gives no evidences of cutaneous sensation.

In women it first shows itself in loss of affection and interest in ordinary occupations. They are capricious, avoid society, and may have hallucinations that their clothes are soiled, infested with insects, or that persons say indecent things to them, or have assaulted them, or that they have had or are going to have a baby; and they will often display the most diabolical cunning in supporting these charges. With this there may be hysterical paroxysms.

Sodomy is the unnatural connection of a man with a man, or unnaturally with a woman, or a man or woman with an animal. The male sodomist who acts the part of

a female is a true sexual pervert, having the gestures and thoughts of a woman. With these may be classed those beings of both sexes who derive sensuous pleasure by bringing their mouths in contact with the genital organs of the opposite or same sex. This last practice seems to produce the most disastrous results of all forms of sexual excess upon the male operated upon, often ending in general paresis. Anthropophagy is that form of sexual perversion where the pleasure is derived by mutilation or cannibalism. Jack the Ripper was probably an example of this class.

Sergeant Bertrand used to dig up bodies, disembowel them, and then masturbate; later he practiced intercourse with the female ones. Homosexuality is the violent passion of a person for one of the same sex. This, in a mild form, is not uncommon, especially among women, and, as an insanity, it was well marked in the Freda Ward murder case.

Sexual hermaphroditism or metamorphosis is where the patient has the feelings, tastes, thoughts, or manners of the opposite sex. Lord Cornbury, one of the royal governors of New York, was a notorious example of this class.

Mosochismus is where one sex derives sensuous thoughts or orgasms upon being dominated over by the other; and sodimus is where the pleasure is derived upon inflicting pain upon the other.

Erotic fetishism is where the orgasm is excited by some article belonging to the opposite sex—as by cutting off the hair, or throwing ink or vitriol on the clothing. With this might be classed voodooism, where the naked buck stands with an erect penis, decorated with ribbons, which is kissed by the devotees.

Most of the cases of sexual perversion which come under our care belong to the second class and the subjects are truly insane. Their inherited or acquired ideas are the result of destruction and anomalous association of the cells of the cortical center. This may remain confined to this part, or spread to other portions and mania result.

With these cases of sexual perversion may be classed those women in whom such intensely modest ideas have been acquired by education that the sexual act not only gives no pleasure, but actually gives rise to feelings of disgust.

Treatment.—It is, of course, of the first importance to remove, as far as possible, any local disorder of the genitals.

Treatment is, of course, of very little value in the congenital cases, but it should be tried if marriage has taken place. The use of such drugs as act as stimulants to the ganglionic cells—such as phosphorus, strychnine, quinine, sodium salicylate, and arsenic—is indicated.

The galvanic and faradaic currents should be tried, the positive pole being placed over the dorso-lumbar spine, and the negative on the inner side of the thigh and perineum, or we may pass the positive pole into the rectum.

Exhaustion of the sexual centers calls for the same medicinal and electrical treatment as in the congenital cases, but with this we should try and give the sexual system the most perfect rest by avoiding any cause which tends to ex-

cite it, and also anything which produces mental or physical fatigue.

Gentle, regular exercise, bathing, and other hygienic measures should not be omitted, and with these a diet rich in nitrogen, with which cod-liver oil may be combined. Irritability of the sexual centers, when due to engorgement, calls for some means of discharging the accumulated force, and this should be done at regular intervals.

Those cases in which it is due to abuse of the sexual functions require the most absolute rest. We should also remove any medicinal or dietetic cause which tends to stimulate the cells.

The diet should be, as far as possible, a farinaceous one. Coffee, alcohol, and spices should be prohibited. Such drugs as the bromides, camphor, and lupulin should be given freely, and the same hygienic measures should be employed. In both sets of cases, if there is feeble heart action and vaso-motor paresis, ergot and digitalis are of value.

Sexual perversion calls for the use of every means which will tend to break up the morbid habits of thought and restore them to their normal channels. We should try and keep the patient continually employed in some healthy physical or mental exercise. Hypnotism has proved of value in some cases, but, as a rule, the prognosis is bad.

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PROPHYLAXIS AND TREATMENT OF DIPHtheria.*

By BEVERLEY ROBINSON, M. D.

(A) *Prophylaxis*.—At our last meeting, after the debate which followed the reading of my paper on Membranous Sore Throat, it was resolved that a thorough discussion should take place at this meeting in regard to the best means to adopt in order to prevent the extension of diphtheria, especially in towns and cities. This, as we all know, is a most important and also a very difficult problem to settle in anything like a satisfactory and thorough manner. The best that I can hope to do is again to bring the matter before the attention of this association, and in connection therewith to state some well-recognized facts with their seeming practical deductions, and finally lay hold of some general—if not always specific—rules of guidance, which shall be of great use to us as practitioners and to the public, who may lend a willing ear to our affirmations. In this way we shall finally obtain entire municipal control of all those conditions which breed diphtheria.

What I shall have to say will have to do mainly with questions of (1) causation, (2) isolation, (3) disinfection. How is diphtheria caused? For many to-day there is the specific germ of diphtheria, the so-called Klebs-Loeffler bacillus, which is found almost invariably in the exudate of the disease, and is regarded as its distinct, *efficient cause*. It is also true, for those who admit this fact, that this bacillus secretes a poison which penetrates the blood and

the tissues, and through them produces all those secondary effects which are the proofs of systemic infection.* On the other hand, we find evidences of diphtheria taking place in a most virulent form, repeated epidemics occurring, indeed, when no such primary cause was revealed, at least if this primary cause—or diphtheria bacillus—takes its origin, as is now often assumed, from a previous case from which contagion, either directly or indirectly, is carried. Diphtheria has arisen in small villages, in isolated farmhouses, in palatial country dwellings, where no case of this disease had previously been known to exist. We must admit, therefore, that ill-ventilated areas or rooms where dampness and dirt are present, where mold fungi appear upon the walls, that cellars which are wet and contain decaying vegetable or animal matter, are quite sufficient at times to bring this poison into active existence. In the admission of almost all observers, filthy privies and cesspools, broken and clogged drains, water-closets and pipes emitting sewer gas, are also causes for the outbreak of an epidemic which is with difficulty arrested. Whenever the milk or the water supply has in any way become contaminated by sewage or filth from different sources, we again have an etiology of this disease which we are willing to admit. To prevent, therefore, all these causes of disease, to stop a development and spread from them, means, of course, to see that our pipes and drains are intact, that no sewer gas from infected sewers may gain entrance into our houses; that our cellars are kept dry, clean, and well ventilated; that there are no floors near the earth with damp spaces shut in between them, which never receive a free current of air; that our closets and rooms everywhere in our homes are frequently cleaned and ventilated.

Whenever a case of diphtheria actually occurs, what we must immediately do with it is to give the patient the best possible isolation. Before, however, isolation is even attempted let us be sure, as nearly as we can be, that we have to do with a case of diphtheria. For this purpose I claim that it is now the duty of the practitioner in every case of doubtful membranous sore throat to swab the fauces with a sterilized cotton-wrapped stick, and to have the exudate taken from the throat submitted immediately to bacteriological examination. As soon as this is done, and while awaiting the report of this investigation, the patient should be put in a room by himself, as far removed as possible from other members of the household, and preferably on the top floor of the house. Before he is placed in this room everything should be removed from it except articles strictly necessary to the well-being of the patient and his nurse. The air of the room should be changed very often, due regard being always had to outside temperature and to avoidance of draughts. Of course, if there is an open fireplace in the room, it can be ventilated easily and effectively, even though the windows are only partially opened. In the dilution and change of air, we have the

* Remarks in opening a discussion on diphtheria before the American Laryngological Association at its fifteenth annual congress.

* It is now proved that the bacillus of diphtheria is able to penetrate "the circulation and the internal organs" (see Case of Diphtheria of the Heart, *Medical Record*, p. 681, May 20, 1893, also *Johns Hopkins Hospital Bulletin* for April, 1893).

best of all disinfectants for a sick-room with a contagious disease present like diphtheria.

The food required by the patient should be brought to the door of the room and carried in by the nurse. No one should see the patient except the nurse and the physician.

All discharges from the patient's mouth or nose should be received upon cloths, which should be immediately burned. The excreta from the bowels and bladder should be properly disinfected with solution of copperas, bichloride of mercury, or carbolic acid, sufficiently concentrated to be really effective. These rules may all be carried out usually in the dwellings of the rich with very little annoyance, trouble, or expense. They may be made far less rigid or stopped altogether if at the expiration of twenty-four hours the bacteriological researches have proved negative. If, on the contrary, these investigations corroborate the opinion that the case is one of diphtheria, they must be insisted upon during the entire duration of the disease. While the rules above laid down are relatively easy of accomplishment in the houses of the wealthy, can they be rigidly enforced in hotels, boarding houses, and, still worse, among the crowded tenements of our large cities? The answer is that they can not, and that even in our attempt to carry them out we shall cause very great trouble, sorrow, and expense which can not be easily met. It therefore behooves us more urgently still in these latter instances to be sure of our *diagnosis* before effective isolation is seriously attempted.

As I have stated above, I know of only one way to strengthen an uncertain diagnosis, and it is by appealing as soon as possible to the expert bacteriologist and obtaining the results of his research. Meanwhile we must imitate, as far as is practicable, the conduct outlined where the conditions are unusually favorable for complete isolation. Whenever the case assumes the undoubted character of true diphtheria, and is therefore of malignant nature—unless the isolation can be made effective in the home—the patient should be carried to a place where this isolation can be had. In my judgment the only way to accomplish this is to have in different sections of our towns and cities one or more isolating hospitals or pavilions, which should be entirely separate from or exist as annexes of our large city hospitals, where diphtheria patients would be taken and intelligently cared for. This is still one of the long-felt needs of this large city, and indeed of most of our cities and towns. Not, indeed, that it has not been met in a certain measure here with us, as witness our Willard Parker Hospital, located in East Sixteenth Street. But a great many more of a similar kind are required, and not for the very poor only, but for the numbers of people in moderate circumstances living in hotels and boarding houses, who, when taken ill with diphtheria, can not be treated properly, and who are a menace to many well persons in their vicinity, who must remain where they are, unless places were provided where they "could be sent until recovery and disinfection at home have been completed"* (Jacobi). Let us hope that

those who are powerful to work changes in regard to this condition of things will see the great wisdom of so doing. First, let our appeal be made to our legislators, to our boards of health; next, to the charitably disposed, who have already given us orthopaedic hospitals, hospitals for cancer and skin diseases, hospitals for consumptives, homes for the aged, the blind, the deaf and dumb, but none for those stricken down suddenly and most grievously with diphtheria, not to speak of scarlet fever, measles, and small-pox.

In regard to funerals and schools, much might be added. It is evident to all thoughtful persons that funerals of contagious diseases should be strictly private, and not only should the family and friends desire it and carry their wishes into effect, and thus prevent all danger of contagion arising from the presence of afflicted ones in the house or chamber where the deceased is, but the law should assert itself for the public good. The regulations governing funerals of those who have died of diphtheria should be distinct and formal, and a sanitary officer should always be present to see that there is no infringement of them by reason of ignorance or neglect.

In regard to the subject of funerals in New York city, it is only proper to add that the latest edition of the Sanitary Code of the Board of Health provides, in section 204, for the proper regulation of them in cases of contagious disorders. In the latter section it makes it the duty of the undertaker to notify the health department of such cases whenever he encounters them, and forbids him to assist in the public or church funeral of any person who has died of a contagious disease. To what extent the ruling of this section is adhered to, I can not say. I am told, however, by my friend Dr. Alva H. Doty, the present head of the bureau of contagious diseases, that the law is strictly observed in every instance.

In regard to schools, it is clear that no child from a house in which there is a case of diphtheria should be admitted to a school until all danger of contagion is over. The precise time during which such absence should be enforced may be a little doubtful, but it is a safe rule to make that a return to school should not be permitted for one month at least from the time of the inception of the disease. In this connection Jacobi writes (*On the Treatment of Diphtheria in America*, Berlin, 1891, p. 5): "In all large communities the cases of diphtheria are reported immediately for the action of the health board. One of its functions is to protect the schools by communicating with the board of education. The children of a family, or those living on the same floor, where a case of diphtheria has broken out, are kept away from the schools until all danger has been averted. The schools have often been closed when an epidemic made its appearance and threatened to prove dangerous." In the light of present knowledge, however, a physician can not conscientiously give a certificate such as school boards generally exact without a bacteriological examination. "The only safe way is for

* In the debate upon Dr. H. M. Biggs's paper before the New York Academy of Medicine, May 18, 1893, entitled *The Organization and*

Equipment of the Division of Disinfection, New York Health Department, and the Method of Work, this matter was considered and its importance emphasized by Dr. J. D. Bryant, Dr. A. Jacobi, and Dr. Beverley Robinson.

school boards to insist in every case upon the applicant for readmission bringing a certificate from the local health authorities that the requirements of the law have been fulfilled, and that it is safe to return to school. Competent health officers should be appointed not only to supervise isolation and disinfection, but also to make or obtain bacteriological examinations when required, inspect schools in time of epidemic, and grant certificates for the readmission of convalescent scholars." (*System of Practical Therapeutics*, Hare, vol. ii, p. 517.)

Section 169 of the Sanitary Code of New York city, however, is the only one which refers to the matter of protection of schools against the invasion of contagious diseases. Moreover, it does so in very general terms and not in such a way as to govern precisely the action of parents and teachers in this important matter. I would therefore suggest that a section be added which will be at once clear and comprehensive, and thus commend itself to the intelligence and conscience of every citizen. This additional section is scientifically supported by the observations of Roux and Yersin, that the bacillus of diphtheria may be found in the pharynx of persons that have suffered from the disease as long as five weeks after the disappearance of the membrane. As a result of this observation, confirmed by the investigation of other authorities, the conclusion seems warranted that most cases of diphtheria, when dismissed from treatment, still possess the capability of transmitting the disease. "While the likelihood of spreading diphtheria after convalescence from the disease is not great, the practical lesson taught is that the greatest care should be exercised during this period; that the cases be not permitted to mingle too soon with other persons; and that for a long time after the disappearance of the membrane and of all the symptoms of the disease, the patient be instructed to continue the employment of antiseptic gargles." (*Medical News*, December 3, 1892, p. 642.)

During the entire period that diphtheria exists in a dwelling and until the whole of it, or the infected rooms of the house, have been thoroughly disinfected, the people living there should be carefully watched. How many cases of diphtheria are carried by children from such a house to others with whom they play daily or into whose houses they are allowed to enter! How many tailors, dressmakers, washerwomen, scrubwomen from such houses are allowed to send their infected clothing or go themselves to other houses where contagious disease has not entered previously and bring it with them in all its virulence! Should there not be proper and legal control of all these people, so that by a judicious system of enforced isolation they would be prevented from carrying disease and death among many who may become victims of their conduct? As to the physicians themselves, I would make it obligatory upon the physician who attends the case to pull a blouse and overalls over his coat and trousers on every occasion before he entered the room of the patient. These garments should be left at the door of the room and placed in a bag properly disinfected from time to time during the course of the disease; or, indeed, fresh clothing of this kind should be provided for the physician, at every visit,

and when once used should be thrown into a boiling disinfectant solution. The blouse might have a hood which should go over the physician's head as an additional safeguard to others. Another suggestion, perhaps even better, is that the physician in attendance wear an antiseptic gown, also with a hood, reaching to his ankles, somewhat after the pattern of those now worn in some of our surgical clinics. These gowns are made of bleached drilling or pure linen, and usually loosely fitting, so that they can be put on or taken off easily. This idea would appear to have been carried out already in a practical way in the new isolating ward "for doubtfuls" at the Trousseau Hospital, Paris, France, which has proved a great success. "At the usual entrance of the hospital is a vestibule for blouses, which are invariably worn by all who participate in the visit, and are dropped upon the floor of another small room before leaving the building." (*Boston Medical and Surgical Journal*, April 27, 1893, p. 412.)

It is also now the custom to wear gowns in the diphtheria wards at the Willard Parker Hospital in New York city. The doctor should wash his face and hands in a mild disinfecting solution, preferably of boric or carbolic acid, whenever he leaves the sick-room. All these precautions seem useful and indeed imperative. The only objection to their being fully carried out is the effect which they might have on the community in one particular. They would make people, at first, even more timorous than they now are in regard to the transport of contagious disorders. On the other hand, in the course of time, and indeed rapidly, would not these fears be greatly lessened owing to a feeling of far greater security in regard to themselves and those they love? Every one would surely understand that all judicious and necessary precautions had been taken to limit the risks of contagion, and soon, as virulent disease like diphtheria became less frequent, each person would cease to dread it so much, merely because he would rarely have occasion to hear about it at all.

The question of disinfection may now properly claim our attention for a little while. As to disinfection of the sick-room during the time the patient is there, it may well be asked if it is desirable to attempt it, and to what extent. I presume it can be safely answered that anything like complete, satisfactory disinfection is wholly impossible without doing the patient positive great injury, and rendering the room unbearable also for the nurse in attendance. I have no objection to, and indeed should rather indorse, the employment of certain mild disinfecting vapors, which possibly make the diphtheritic germs less active, so far as the patient himself is concerned, and render it less probable that they will do harm to others, if they are carried upon the person of the physician, or in some article of clothing, furniture, bedding, crockery, etc., which has been taken from the room prior to the cure of the patient, or the complete disinfection of all his surroundings. Of course the use of such a disinfectant should not, in any sense, interfere with the immersion in boiling water with carbonate of sodium (Na_2CO_3) of all such articles as can be thus immersed, without injury to them, prior to their being removed from the room. Of the disinfecting agents to be thus usefully

employed, I have no hesitancy in recommending those, in the first place, which can be volatilized readily, and which will thus be able to penetrate every nook and corner of the room, and, in addition, are likely to be useful to the patient when directly inhaled by him, and be brought in contact with diseased surfaces. Further, such agents need not be too unpleasant for the nurse and physician, and may perhaps make them more impervious to contracting diphtheria themselves, and less liable to aid, or cause, its spread outside the sick-room. The more volatile agents, which are frequently placed in saucers around the sick-room, sprinkled over the bed-linen, hung in saturated cloths on either side of the door opening into the hall, or into an adjoining room, although probably unobjectionable, have far less real utility in my judgment. In this list we may place such well-known agents as chloride of lime or permanganate of potassium in solution. Among the volatile agents which seem most satisfactory, and which have, according to some good observers, given valuable results, we may properly include substances like eucalyptus, turpentine, carbolic acid, creasote, and tar. Either one of these agents may be added to a can containing boiling water, and this water may be kept simmering most of the time near the bed of the patient. These agents should not generally be employed in strong enough proportions to occasion any additional local irritation of the respiratory tract. They should simply be added to the water in sufficient quantity to correct at the time the evident catarrhal element which is often so prominent a feature in the rise and development of very many cases of diphtheria. Sometimes one of the agents may be used alone, sometimes various agents may be combined in a similar or different proportion, and the combined drugs may be added to the steaming water. Dr. J. Lewis Smith has found a combination of the following kind to be very useful in his own practice and that of others, and cordially recommends it to those physicians who have charge of cases of diphtheria. It consists of an ounce each of oil of eucalyptus and carbolic acid,* and eight ounces of turpentine. Of this mixture two tablespoonfuls are added to the water contained in a wide pan whose contents are about one quart. In stronger proportions of carbolic acid and eucalyptus this vapor has proved irritating and offensive to some patients. If such a vapor as this is really useful, I can readily believe that it would be well to adopt it for the complete disinfection of many places in which such remedies should, from time to time, be employed, even though there be not invariably the confirmed proof that a true case of diphtheria has been present at the spot. In such category I would include all public places where large numbers of people congregate, or are continually remaining for a while, and then going elsewhere. All schoolrooms, public halls, theaters and other places of amusement, public vehicles, cars, and perhaps churches, should be subjected, at times, to this kind of

local disinfection. Are such vapors more, or less, useful than the well-known sulphur fumigations, which are always resorted to in our city disinfections after the patient has completely convalesced? * I am not authorized to say, and I am not conversant with any experiments which demonstrate clearly their usefulness or their practical inutility. What I do know is this—and this was referred to last year by me at our regular annual meeting in Boston—that sulphur fumigations as carried out by our health authorities are frequently ineffective and highly objectionable. I have alluded already in my previous paper to many of these objections. I would again refer to one which appears to me very important, and which has not, I believe, been often mentioned, and it is that the active member of the disinfecting apparatus is never thoroughly disinfected himself; and it seems to me that he must necessarily be the direct carrier of many more infective germs than he gets rid of by burning a few pounds of sulphur in a closed room. It is evident that this person can not remain in the room long enough to be properly disinfected, even presuming that sulphur vapors would disinfect the outer man. It is certain that this agent, representative at the health board, can not take even a whiff of sulphurous vapor without occasioning himself harassing cough and sensations of suffocation. The vapor referred to above, equally disinfecting with that of sulphur, doubtless can be inhaled, for a while at least, in tolerably concentrated form without causing positive injury, and for this reason alone is preferable; and if the man sent around to different houses by the health authorities would surround himself for a short time even with such vapors, he would probably become less dangerous as a direct carrier of infective disease. A point that can not be too strongly insisted upon in every way, not merely for the patient himself, but for the nurse, the physician, and indeed all persons who in any way have been exposed to the contagion of diphtheria, is the frequent use of mildly detergent and antiseptic gargles, such as those of carbolic acid with borax and water, or of thymol, menthol, wintergreen, combined with more or less saturated solutions of boric acid; or of very mild solutions (1 to 10,000) of bichloride of mercury. By these means I am confident the limitation to the spread of diphtheria will be surely effected. Nothing, we must admit, is more clearly and definitely established to-day than the fact that frequent local disinfection of the mouth, fauces, and pharynx even with very mild agents of this order is most important in diminishing the local extension of the diphtheria exudate, and in this manner lessening the deleterious general effects of the poison secreted by the bacillus, which becomes so rapidly absorbed, and extends throughout the organism in every part.

Again, it is well in time of epidemic to be particularly careful in regard to the management of all throat ailments, even slight in character, and particularly among young

* Instead of carbolic acid, I would prefer creasote in this formula, as being less liable to cause injurious or poisonous symptoms from continuous absorption through inhalation. Indeed, it may be prudent for various reasons to interrupt the inhalations occasionally.

* It has been shown latterly that fumigations with burning sulphur ($=SO_2$) must be rendered *extremely moist* in order to be at all effective, otherwise, they are relatively inert. Biggs (H. M.) before the New York Academy of Medicine, May 18, 1893.

children. I would strongly advise, under these circumstances, frequent gargling with one of the combinations mentioned above, and as additional security I believe a throat inspection should be made daily of all scholars in our public schools, of all children in our homes, by some one competent to discover the first symptoms of local infection with diphtheria. Of course, this obligation becomes still more urgent whenever a child or adult, no matter where found or in what capacity, complains of symptoms of general malaise, allied or not with local symptoms or signs of implication of the throat in acute disease.*

(B) *Treatment of Diphtheria.*—Despite the advances made during the past few years in our knowledge of the pathogeny of diphtheria, as is shown especially in bacteriological investigations of this disease, the treatment of it is still uncertain and unsatisfactory. The really bad, malignant cases frequently progress inevitably to a fatal termination, and in some of them it is doubtful if any treatment thus far tried will arrest their march for a while, or ultimately cure them. Such appears to be the testimony of some excellent observers of wide experience. These fatal cases doubtless become so by reason of the toxic character of the epidemic, and the extreme susceptibility of some patients to the virulent poison of the disease. It is generally admitted, however, that those patients continue to react most favorably who are actively and judiciously treated from the inception of the disease. The mode of treatment seems to vary considerably with different observers. There is, however, a tolerably large and increasing number of eminent practitioners who evidently consider proper local treatment of the highest importance. Of these, many use drugs internally with the conviction of being helpful to the patients.

Among them I would especially cite Jacobi, who thus speaks of the use of the bichloride of mercury when it is given internally: "That its beneficial effect is not at all limited to the cases of laryngeal stenosis, but also those of sepsis. Indeed, in a great many such cases it has been administered and found effective" (*loc. cit.*, p. 17). On the other hand, Osler writes (*Practice of Medicine*, p. 109) that "we are still without a remedy capable of combating in any way the effects of the poisonous toxalbumins." I can not say that I have seen from the bichloride of mercury "the specially good effects which many writers describe." The latest report, moreover, of one of the large German hospitals is to the effect that no internal treatment was employed, and the results obtained with severe cases of diphtheria have been quite favorable as compared with numerous antecedent or contemporaneous results accomplished elsewhere. The report just referred to is that of the Friedrichshain Hospital in Berlin, where it is stated that "during the last two years no drug treatment was instituted," and yet there were sixty-four per cent. cures (*Journal of Laryngology*, March, 1893, p.

124). This experience is also corroborated by that at the Willard Parker Hospital, where, according to Dr. William H. Park (*Medical Record*, July 30, 1892, p. 117) "the only constitutional treatment is to give alcoholic stimulants throughout the course of the disease to those showing any tendency to heart failure." The great difficulty in obtaining the best effects of local treatment is due to our inability to reach directly all the parts involved with topical applications. Ordinarily it is believed that these applications should be of distinctively antiseptic nature. In regard to the particular drug employed, the strength, manner, and frequency of its use, there are great differences of opinion. Of course, the manner in which treatment is conducted must differ somewhat with adults and children, the latter being less amenable to reason and less willing, therefore, to submit quietly to the necessary manipulations for the cure of the disease. Most observers are united in the belief that our main efforts should be directed toward destroying or lessening the vitality of the bacilli, diminishing the local spread of the disease, neutralizing the toxic results of absorption of the poisons produced by the bacilli, and support of the patient's strength with food and alcoholic stimulants. Inasmuch as the majority of cases of diphtheria occur among children, we must first consider how such cases may best be treated. This will depend upon whether the disease affects the nose, the pharynx, the larynx, or all these organs. If it attacks the pharynx, and as soon as we have the first local evidence of this implantation, mild cleansing, disinfectant solutions should frequently be employed. Depending upon the age of the child and its degree of weakness or strength, the throat must be treated with sprays, with irrigation, or with gargles. Sometimes one, sometimes the other method is most successful, according to the age and willingness of the little patient. In this connection, I wish to emphasize the fact that in my experience it is more useful and satisfactory to disinfect and cleanse the throat by means of sprays, employed not directly through the mouth but indirectly through the nose. In this manner nearly every portion of the diseased membrane is brought into more complete contact with the medicated solution than in any other way, and with less distress and fatigue to the sick child. Whenever the spray fills the nasal passages, it will almost inevitably, in the large number of instances, reach almost the entire naso-pharynx, the middle pharynx, and portions at least of the fauces and tonsils. Through efforts of gagging or choking by the patient, the latter parts are surely cleansed and disinfected. Nasal sprays, in my judgment, should be rather coarse, never very strong, and be repeated every hour or two. The frequency of their use should depend somewhat upon the malignancy of the case, the thoroughness with which they are employed, and the time of day or night. In general, I am glad to say that I am in accord, in this opinion, with Dr. C. A. Siegfried—who writes: "In the very young, sprays can be introduced through the nostrils to the back of the throat" (*Medical Record*, November 26, 1892)—and the treatment of the Willard Parker Hospital, where "all patients have their nostrils syringed with a bichloride solution." Dr. A. Jacobi also

* In view of the results of Feer's study (*Medical News*, May 20, 1893, p. 552) it would appear evident that "virulent diphtheria bacilli may be found upon the tonsils in the total absence of deposit." The practical outcome of this observation "leads to the treatment of doubtful cases in times of epidemic."

states, with his very large experience to guide him, as follows: "Gentle nasal injections reach the important part of the pharynx better than injections in the oral cavity." (*On the Treatment of Diphtheria in America*, p. 11.) "Nasal injections must be made early, frequently, and persistently." In speaking of nasal and naso-pharyngeal diphtheria infection, Dr. Jacobi affirms emphatically that "nasal injections alone are beneficial, and sometimes so to a remarkable degree" (p. 13). Immediately after the use of the spray a strong disinfecting solution should be applied directly to the diphtheritic patches in the throat by means of a swab or brush. The sprays for the nose must be preferably made from mild solutions of carbolic acid with lime water, borax, or bicarbonate of sodium, or else from very dilute solutions of bichloride of mercury. The solutions of carbolic acid should not be stronger than one or two per cent.; those of mercury, one to 4,000, 8,000, or 10,000.

In this connection I would mention that the *résumé* of the collective investigation of the *Therapeutic Gazette* (1883) is not favorable to the use of carbolic acid. It is regarded as a useless and positively harmful application. Jacobi seems to support this view, and despite the fact cited by him that Prudden (*Am. Jour. of the Med. Sci.*, 1881) found that a one-sixth-per-cent. solution suffices to stop the emigration of leucocytes (*loc. cit.*, p. 10).

From time to time, or about once every four hours, it is wise to give the fauces, tonsils, and pharynx a thorough, direct cleansing with this same spray, or by means of a syringe. The local applications with a brush or swab to the back of the throat should be made with a solution of bichloride of mercury (1 to 500, or even 1 to 250). During these necessary manipulations the child should remain in bed or be held on the lap of the nurse and wrapped in a blanket. Dr. Billington thus describes how nasal syringing can best be accomplished: "The assistance of two persons is required. The child is seated across the lap of one of these persons, who secures his hands with one of her own, and with the other holds the basin to receive the discharge. The other person stands behind the child, takes his head between the palms of her hands, and, leaning forward, holds it firmly against her breast. A third person, who should when possible be a physician, can then easily make the injection into the child's nostrils without the danger of injury to them by its sudden movements" (*Diphtheria and Croup*, p. 225). To show how opposed is the experience of competent observers, I would cite Jacobi's judgment, which is that "it is acknowledged as a positive rule among all good practitioners that no child must be taken out of bed for the purpose of injections, that the preparations for the procedure must be made out of sight, and quickly but gently, in a recumbent or semirecumbent posture" (p. 12). Subsequent to the cleansing and swabbing, the child should be allowed to rest during a half-hour or an hour. Then a dose of the tincture of the sesquichloride of iron in glycerin and water, or a tablet of bichloride of mercury in solution in water or milk, should be given, followed by liquid food and alcoholic stimulant. The amount of the tincture of iron given should be from

one to two drops for every year of the child's age; that of mercury in tablet form, from one one-hundredth of a grain to one fiftieth of a grain. The best old brandy, in amount proportionate to the age and condition of asthenia, should be given in milk, alternated occasionally with beef juice or concentrated broths of mutton or chicken. Meanwhile, of course, the antiseptic vapors (referred to under prophylaxis) of turpentine, carbolic acid, and oil of eucalyptus should be kept in use more or less constantly. They must also be directed in such a way from a croup kettle under a hood over the child's head, or a tent around the crib with suitable supports and an opening for ventilation, as to allow the child to inhale the vapors sufficiently to obtain an appreciable medicinal effect in this manner.

I have thus outlined what appears to me the most rational way of treating cases of nasal and pharyngeal diphtheria. It is based upon a judicial estimate of the conditions involved, and with due regard for the knowledge thus far acquired through experimental research and clinical experience. There are many other agents, as we all know, in the nature of caustics, astringents, disinfectants, dyes, solvents, etc., which have been praised by different observers for their curative action in diphtheria. Among them all, none seems to me to merit confidence as much as those already mentioned, especially when they are employed after the manner I have indicated. I find, moreover, that a larger number of practitioners laud their use than they do other agents of a similar or different order. Personally I have had good reason to believe that freshly powdered cubeb has a very marked action in changing favorably the character of the membranous deposit, and in lessening the accompanying catarrhal inflammation of the fauces, which always is allied with the evident diphtheritic manifestations.* I have become convinced, through personal observations and experience, that the agents employed by some practitioners with considerable faith can not be relied upon as much as those which I have selected and habitually use.

To make applications more frequently to the nasal passages or to the throat than I have advised is unnecessary and often injurious. They frighten and exhaust the child too much. They do not allow it to take and retain sufficient nutriment. If the solutions are made stronger, they are too irritating to be frequently repeated, and perhaps render the mucous membrane of the parts affected more prone to become involved by the encroachment of the disease than they otherwise would be. I have become satisfied latterly that the failure oftentimes to cleanse the nose and naso-pharynx efficiently is one reason why an otherwise good method of treatment is not oftener followed by the amelioration or recovery of the patient. The cleansing of the nasal passage is carried out whenever the presence of diphtheritic membrane in this organ is assured. In cases, however, in which this membrane is not apparent it is too often neglected. It is my belief that absorption of many poisonous products is thus frequently permitted when it might be in part prevented. I am persuaded that many cases

* Even though cubeb has been shown by Dr. W. H. Park to be innocuous to the diphtheria bacillus, it may have important action in helping destroy its poisonous product.

become much more serious through the omission referred to. Is it not true that absorption from the nasal passages takes place more readily than from the fauces? Do not the most serious cases usually show extension, sooner or later, of the diphtheritic process to these passages? Why not, therefore, avoid or prevent this grave development, if possible, by rational means? In regard to the frequency of local applications I would again urge very strongly *not* to employ them more frequently than I have advised. Meddlesome or too much interference is ultimately injurious in diphtheria, and mainly because it exhausts vitality and prevents essential recuperation by means of rest, food, and stimulants. Applications of undue strength frequently made to the nasal passages occasion pain and irritation, which increase notably the distress of the patient with no compensating return, and make the membrane, by possible abrasions, more susceptible to the virulence of the disease. Whenever the symptoms point unfortunately toward the involvement of the larynx, we should rely far less upon the utility of disinfecting sprays than in nasal or pharyngeal diphtheria, inasmuch as they penetrate very little or at all within this organ. Antiseptic vapors, the internal use of the medicines which have a favorable constitutional effect, are here more to be trusted. In the event of considerable laryngeal obstruction, we must make use of vomiting agents—such as turpeth mineral, alum, ipecac—if the child's strength permits, and follow their use with active stimulation. Occasionally false membranes from the larynx are thrown off by this means, and great temporary relief is obtained. At times no remedial effect is produced, and the child is only weakened and distressed to no purpose, for the laryngeal obstruction after their use is quite as great as previously. Under these circumstances we must look to intubation or tracheotomy as our sole remaining means of help.

I have now almost reached the end of my paper. Not that there is not a great deal more that could be said—not that there is not much of the very highest importance to which I have not even referred. But I feel I have taken up sufficient time with my own remarks and opinions, and I desire to hear from others. I would like our discussion to be widely read, widely reported. It is too important in its many aspects of practical and daily moment to all of us to be ignored or laid aside. I for one would be glad to have our laryngological association have the honor and great satisfaction of indicating the road to reforms which must surely come in time, but need to come speedily and for the great advantage of very many people. In order to show how important isolation and disinfection may become in reducing the number of cases of diphtheria and the number of deaths therefrom, I beg leave to make the following citation: "At a meeting of the Michigan Medical Society the secretary demonstrated in a tabulated statement, accompanied with a graphic chart, important facts in the various outbreaks reported by local health officers during the year 1886. In a hundred and two outbreaks in which there was neglect of one or both of these measures the average number of cases to the outbreak was a little over sixteen and the average number of deaths 3.23; while in a hun-

dred and sixteen outbreaks in which both were enforced the average number of cases was 2.86, and that of deaths 0.66. In other words, these simple precautions reduced the number of cases occurring during the year by 1,545 and the number of deaths by 298."*

In conclusion, I can not do better than to take textually from the last published article of Dr. William H. Park, than whom no one deserves more commendation for his admirable scientific work of great and living interest to almost every one. Dr. Park writes (*Medical Record*, February 11, 1893; reprint, page 23): "The making of a true diagnosis in every case is not of scientific interest only, but of great practical importance. Care for the public health requires that every case of possible diphtheria be properly isolated and treated as diphtheria until all doubt is removed. Regard for the patient demands that no suspicious case that is not diphtheria be regarded and treated as such any longer than the fourteen hours absolutely necessary for making the diagnosis. In doubtful cases, therefore, it is the duty of physicians to obtain a diagnosis by the use of cultures. A correct diagnosis will also be a satisfaction to them, and will be a help in prognosis and treatment, and of great value in the diagnosing of future cases. The efficiency, simplicity, and cheapness of the methods for making an early diagnosis in doubtful cases would seem to render its employment by health authorities among the poorer classes advisable."

THE TECHNIQUE OF THIERSCH'S SKIN GRAFTING.

By C. L. GIBSON, M.D.

THE operation of Thiersch's skin grafting has been in vogue so long and has given such favorable results that it could not fail to have been modified. In some communities the local fame of certain modifications have brought to the latter the character of a model. These modifications and their results have been so widely circulated that further description would appear ill timed. As many of the methods, however, have been in the direction of complicating and elaborating the process, the writer ventures to formulate a method which will comply with all the practical details with the use of fewest minutiae and special apparatus. This work is the result of experience in the practice of many surgeons, both in this country and abroad, and of a small but gratifying personal experience.

The technique consists of three stages, each of equal importance. Failure in perfection of technique in any stage will spoil the whole procedure.

Preparatory Stage.—This deals both with the field to be covered with skin and the field which is to supply the necessary skin.

The field to be covered may consist either of a fresh wound or of a granulating surface.

When we have a fresh wound—*e. g.*, as a loss of sub-

* *New York Medical Journal*, May 21, 1887, page 580—quoted by Billington, in his treatise on *Diphtheria and Croup*, page 149.

stance owing to failure of approximation of skin flaps after amputation of the breast—the only preparation necessary is the observance of absolute asepsis in the strictest sense of the word. Hence the hands which touch these parts must be ridden of the presence of any antiseptic solutions by repeated washing in cooled boiled water, towels treated by heat alone, as also instruments (boiling). Where the use of a solution for irrigation or for moistening dressings is indicated, only the physiological salt solution is to be used—*e. g.*,

Chloride of sodium..... 7 parts.
Boiled water..... 1,000 “

Best prepared by boiling the water in the vessel destined to preserve it.

In the case of granulating surfaces, their preparation consists in an antiseptic stage and a second aseptic stage. When feasible, the process should be begun a week prior to the operation. First shave the surrounding skin liberally. Next wash off with plain water all the dirt possible. Leave on the surrounding skin a piece of muslin evenly covered with green soap. Cover the muslin with some non-porous substance, as oiled paper; leave this on twelve hours. The macerating action of the soap is thus intensified, the superficial epidermis with its numerous micro-organisms is loosened. The scrubbing brush is now diligently applied, and by this mechanical removal of the dirt we accomplish one of the most important objects. Equal parts of sulphuric ether and alcohol are used next to wash the parts, followed by a faithful irrigation with 1-to-1,000 bichloride-of-mercury solution. A dressing of gauze, wet with 1-to-5,000 bichloride, is next applied and renewed daily. Two days before the operation soap is again applied for a short time, say an hour, and the whole cleansing process is repeated. After the irrigation with bichloride, however, a stream of physiological salt solution is played over the parts, and the dressing is accomplished with gauze sterilized by heat and soaked in the salt solution. The dressing and irrigation are repeated the next day again with salt solution as before.

The above described steps are to be followed exactly in treating the skin destined to furnish the grafts.

The Operative Stage.—When the parts are not already prepared to receive the grafts they are subjected to a radical treatment which converts them into a fresh wound. The sharp spoon removes every particle of granulating surface till a fresh raw surface is obtained. The blunt edge of some broad surface, such as the solid-bladed right-angled retractor, will be found of time-saving use where the granulations are flabby. The secret of success lies in the apparently brutal but radical use of these instruments. Sloughing, irregular edges must be trimmed off with knife or scissors. Absolute hæmostasis must now be obtained. Where no spurting vessels are present the wound is simply washed with cold salt solution, then sterilized compresses wet in the same solution are applied to the parts and firm pressure maintained by an assistant or by a temporary bandage, which, if dealing with an extremity, must begin at the distal portion of the limb. Meanwhile the cutting of the grafts is begun. The most suitable place is the thigh, and

will always be chosen where possible. The most advantageous surface is the extensor, next the external.

We wish to obtain large and evenly cut grafts. To insure this purpose the skin must be so stretched that the largest possible area falls into a single plane. Two methods have been used extensively in America for this purpose. One is an ingenious machine devised by Dr. Mixer, which fixes the skin and accomplishes the cutting of the grafts, so to speak, automatically. Another process, devised by Dr. McBurney, fixes the skin in a single plane by tension through a many-pronged hook above and below. While acknowledging the ingenuity and efficacy of these methods, the writer is firmly convinced that such apparatus may be dispensed with by caring for the position of the limb. The hip should be extended and the knee flexed for cutting on the extensor surface; for cutting on the external surface slight adduction should be added. A towel is passed around the limb above and below the operative field, and tension on these in opposite directions by an assistant gives us a surface admirably answering all our purposes.

It is generally recommended to cut the grafts with a razor ground flat on one side, such as is used for cutting histological specimens. Very large razors, practically medium-sized microtome knives, have been used by some operators. These large knives are used to cut extra large grafts. The writer is convinced that any peculiar knife or razor is unnecessary, and even has its drawbacks. None of these knives are ever so sharp as a first-class hollow-ground razor as commonly used in America. Moreover, the sharp razor cuts grafts that are but very little smaller than those cut with the microtome knives, and finally enormous grafts do not necessarily indicate ultimate success.

The dressing is removed from the thigh, the skin is irrigated with salt solution.

The grafts are cut from above downward, in strips about two inches wide and as long as five or six inches. Contrary to general observation, the thicker grafts have yielded the most satisfactory results in the writer's hands; but the razor should never be allowed to penetrate into the subcutaneous tissue. The motion should be a seesaw accomplished rather rapidly and as evenly as possible. A little salt solution should be allowed to trickle on the skin in the razor's path. On cutting through the end of the strip, one of two methods may be employed to transfer the graft to the denuded surface. The razor, with the graft uppermost, may simply be laid on the part, the divided surface overlying the razor's edge withdrawn, cautiously spreading out the graft in its retreat, which is smoothed out with tenaculum and forceps. Another method devised by Dr. Abbe adds a little to the time of the operation, but probably secures better adaptation. The grafts are first thrown into a basin of salt solution warmed to 95° to 100° F. They are then floated on to strips of protective tissue, the raw surface uppermost. As the strips of protective tissue are lifted up out of the water the rather frayed edges are straightened out, and with a pair of scissors may be trimmed off on the tissue. The graft is then laid on the denuded surface, pressed into place with the finger, and

the tissue removed, leaving the graft in perfect position. No harm comes from the transfer to the salt solution. Successive strips may be applied alongside of each other very closely, as is necessary owing to subsequent shrinking of the grafts. No rules can be formulated for patterning the disposition of the grafts to the greatest advantage, this process depending for success on the operator's instincts. While close approximation is desired, the grafts should not overlap, as such projections will find no nourishing base and will slough off.

General anaesthesia is necessary generally for the performance of the operation. Where the extent of the surface is so small that local anaesthesia successfully overcomes the pain, the possible injurious effect of the local anæsthetic on the vitality of the grafts must be borne in mind.

The After-treatment.—The grafts should be covered with strips of protective tissue of an average width of an inch and a half applied so that each strip slightly overlaps the other. A well-fitting protection is thus applied. The chief indications of the after-treatment are protection and rest of the grafts with maintenance of moisture. Formerly the grafts received a daily dressing to maintain the moisture. To do away with this objectionable feature, the following procedure has yielded very satisfactory results in the writer's hands. Cover the grafts with a single layer of sterilized crumpled gauze wet in salt solution. Next lay on one or two soft-rubber drainage-tubes of a length slightly greater than that of the proposed dressing. The middle third of these tubes is perforated with a number of small holes. Above them comes a pretty voluminous dressing of gauze similar to the first layer. Then a covering of dry sterilized absorbent cotton. Finally a sheet of protective tissue slightly larger than the dressing. The whole firmly maintained with a gauze bandage. The tubes project beyond the whole; but obliteration of their lumen is secured by surrounding them with a temporary ligature, clamp, or other suitable device.

The sole local after-treatment for the next five to seven days consists in the daily introduction through the tubes of a sufficient amount of salt solution to keep the dressing wet. At the expiration of five to seven days the dressing should be cautiously removed. We have then to expect the following condition: Grafts moderately adherent and of a pinkish hue. Between their surfaces a little film of pultaceous material resulting from separation of shredly non-nourished filaments. On the surface of the grafts often a little of this material which is only the desquamation of the epidermis. Any attempts at cleansing, irrigation, etc., should be very limited and gentle. The grafts are redressed as at the time of the operation, and the same after-treatment continued. At the expiration of another week the second dressing will show us definitely what has been obtained. Non-adherent portions, if present, will be removed; the wet dressing replaced by the use of indifferent ointments, as further moisture is apt to lead to a boggy, unhealthy condition. Any granulating surfaces, which should rarely occur, are treated on general principles.

For the denuded thigh, a dressing of dry aseptic gauze and cotton is all that is needed. It should remain undis-

turbed for two weeks, and satisfactory cicatrization will follow.

The foregoing description seems rather lengthy, but a large part of it is devoted to the accurate description of the stages of antiseptic and asepis necessary in such operations by any method.

The writer would again call attention to two important features. First, the entire freedom from use of any special instruments and apparatus; secondly, the extreme simplicity of the after-care, this simplicity of itself insuring the necessary rest and protection of the grafts.

46 WEST THIRTY-THIRD STREET.

THE VALUE OF THE OPHTHALMOMETER

IN THE DETERMINATION OF THE AXIS AND
THE AMOUNT OF ASTIGMATISM.

By LOUIS J. LAUTENBACH, M. D., Ph. D.,

PHILADELPHIA,
SURGEON TO THE PENNSYLVANIA EYE AND EAR INFIRMARY;
CHIEF OF THE EYE CLINIC OF THE GERMAN HOSPITAL.

THE results herewith presented are drawn from the study of almost one thousand three hundred eyes with the ordinary tests (the ophthalmoscope, retinoscope, etc.) and the ophthalmometer, and the subsequent determination of the subjective refraction by mydriatics, either atropine or homatropine.

My first experience with the ophthalmometer was with the Helmholtz instrument. This measured the corneal curvatures very accurately, but required quite a long sitting to complete the examination, sixteen readings being necessary for each eye.

It is mainly on this account that it has proved to be a useless instrument in the working office, being, however, of great value for scientific research.

Later (in 1892) I began to use the Javal-Schiötz instrument, and now use it regularly in every case. Since I purchased it I have examined the eyes of over six hundred patients.

I consider the make of the instrument and its mode of use responsible for much of the difference in results of ophthalmometry, or rather, as it should be termed, keratometry.

My instrument is one made by Meyrowitz, of New York. It is solidly constructed with a good metal base, and its head-rest is attached by a metal support directly to the base; there is no vibration and no give to it; the parts are all fixed and firm. I have four sixteen-candle-power incandescent lights attached to the head-rest to illumine the disc.

After the instrument had been constructed and delivered to me I had the arc set in proper position and the prisms overhauled by Mr. Seidel, of Philadelphia. After this was done the results were markedly more accurate than before, as the slightest deviation in the setting of the arc modifies the reading of the axis and the amount of astigmatism.

The instrument is mounted on a firm typewriter stand with an overlapping leaf to give room underneath for the patient's knees as well as to give him a place to rest his arms and hands.

In the barrel of the instrument on the center of the lens I have fastened a square of green paper of five millimetres. This is a most necessary procedure, as by no other method have I been able to fix the patient's eye so well.

Fastened to the head-rest of the instrument I have a pair of straps by means of which I prevent any forward or backward motion of the head.

In order to have the patient's head and neck comfortable when resting in the headpiece, I have a chair which I raise or lower to the proper height.

In taking my readings I turn on the electric current, place the patient in the chair, raise it to the proper height, have him rest his chin on the chin-rest and press his forehead against the upper part of the rest, place his eyes at the proper height and see that they are on a level, tighten the straps just below the occipital protuberance, seeing that he is resting his feet firmly on the floor and his arms on the table; then, the spider's web being in proper position, I cover his left eye with the slide and direct him to look at the square in the barrel.

I then focus the image accurately by raising or lowering the screw, pushing the barrel to the right or left and drawing it to or from my patient. I commence invariably with my indicator pointing to 90° and bring the mires in apposition at this point, the center of the line of apposition being at the cross of the spider's web.

If the central lines are not continuous I revolve to the right or left until they are continuous, and then again bring the mires into apposition. I then note this axis, and also the radius of curvature.

I then turn the indicator just 90° from this, and if the lines are again continuous I note this axis and the amount of overlapping of the mires or their divergence; then again bringing the mires into apposition, I again note the corneal radius.

If the lines are not continuous I revolve to right or left until they are so, and proceed as before indicated. I then examine the left eye in the same way.

Usually the whole procedure—the examination of both eyes—will not take over three minutes, and the results are so accurate that subsequent examinations give absolutely the same results.

I speak of this accuracy as I have noted others who indicate that frequent examinations are necessary. This accuracy and time saving is, I think, the result of the perfect illumination and the fixed and accurate position, as well as the ease and comfort in which the patient is placed.

Occasionally I find a cornea very hazy. In these cases I use a drop of castor oil instilled into the eye, and, closing the lids, rub the eye very gently. Again I find the image becoming hazy while under examination. This is due occasionally to a lack of secretion, but more frequently to an excess. In these cases I direct the patient

to wink two or three times or to close the eye for a few moments and then continue the examination. Occasionally when the arc is vertical or nearly so the image of the white parallelogram is either indistinct or it disappears; this is obviated by directing the patient to open his eye wider, a heavy eyelid being the cause of it.

I am more and more convinced that Burnett's allowance of 0.5 D. as the difference between the astigmatism of the ophthalmometer and the subjective astigmatism is too high. I make an allowance of 0.37 D., subtracting this if the astigmatism is with the rule and adding it if against the rule.

My cases have been so numerous and I have been so busy in many ways that I have not thoroughly analyzed them, but will here give you the results—the practical results:

1. That the ophthalmometer of Javal and Schiötz will determine the axis and amount only of the corneal astigmatism.
2. That it will determine accurately the axis of astigmatism in between eighty and ninety per cent. of the cases.
3. That in about forty-five per cent. of the cases (making the correction of 0.37 D.) it will determine the amount of the astigmatism.

1723 WALNUT STREET.

A CASE OF NASAL POLYPUS PROJECTING INTO THE NASO-PHARYNX.

WITH SPECIMENS.*

By SAMUEL JOHNSTON, M. D.,
BALTIMORE.

The patient from whom these specimens were removed was sixty years of age.

She consulted me with a history, briefly, of nasal obstruc-



FIG. 1.—Side view of the polypus.



FIG. 2.—Front view.

* Read before the American Laryngological Association at its fifth annual congress.

tion, difficulty in swallowing, and impaired voice production. For many years previous to the onset of these symptoms she had suffered from catarrh, but had never had epistaxis.

Several reflexes were present, notably asthma, and her distress was indescribable.

Upon anterior rhinoscopy, the right nostril was seen to be occluded at its posterior opening, the left one being pervious.

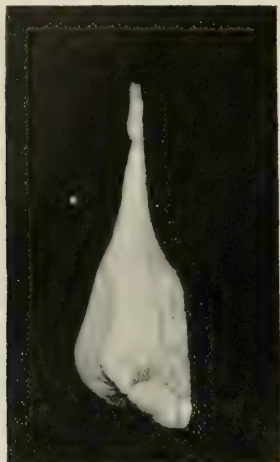


FIG. 3.—Recurrent growth.

On inspecting the mouth, a tumor of unusual size, grayish in color, non-vascular, and firm to the touch, was observed to protrude between the border of the soft palate and the post-pharyngeal wall.

When vocalization was attempted, the growth disappeared into the naso-pharynx, pushing forward the velum.

After removal with the snare, the growth was found to be of about the size of a pullet's egg, slightly flattened, with a smaller one adjoining, and was seen, upon examination, to have had its attachment by a narrow pedicle to the inferior turbinated bone.

A year later the patient returned with a train of symptoms similar to those presented on the first occasion, though not so pronounced. Examination revealed a mucous polypus hanging freely over the velum, almost touching the base of the tongue. The gross appearances of this growth were quite in contrast to those of the first one.

The tumor measured two inches in length and three quarters of an inch at its thickest part.

Polypi having their origin in the nasal passages and growing posteriorly to the size of these specimens are uncommon in my experience, and I have thought them not unworthy of presenting to the association.

The American Medical Editors will have a meeting and banquet in Washington on the evening of Monday, September 4th, the day preceding the assembling of the Pan-American Medical Congress. Dr. I. N. Love, of the *Medical Mirror*, 3642 Lindell Avenue, St. Louis, has been appointed chairman of the committee of arrangements for the banquet, which fact, says the *Alienist and Neurologist*, gives ample assurance of the success of the latter. It is earnestly hoped that every medical editor of all the Americas will endeavor to be present on the interesting occasion.

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THE MILK SUPPLY OF CITIES.

THE milk supply of large cities is a subject of supreme importance. Not only is milk an essential element in the diet of adults, but it is the exclusive food of thousands of invalids and young children. Impurity means illness and discomfort to many, and to some actual death. The enormous death rate of children in summer is in large measure directly attributable to changes in the milk which constitutes their food. Much attention has been devoted to the subject by the medical profession for several years. For some time the main object seemed to be to render milk safe by certain processes after it reached the city. Attention was chiefly directed to sterilizing the milk, and a little later to Pasteurizing. Recently the more rational view has been promulgated that the chief attention should be devoted to the management of milk at its source of supply. In every discussion upon the artificial feeding of infants, physicians come back to the fundamental principle that in large cities we are handicapped by the quality of the milk received, and conclude that but little further advancement is to be made until cleaner and purer milk is obtainable. In New York there has unquestionably been a decided improvement in the character of the milk in recent years. The quality, so far as adulteration and constituent parts are concerned, is, on the whole, excellent. For this result we are largely indebted to the board of health. Its supervision over the milk supply is constant and very efficient, but it has reached its limit of power. The chief objection to the milk now received is the large amount of bacteria and organic filth which it contains. Adulterated milk causes indigestion, rickets, and marasmus. Filthy and germ-laden milk causes entero-colitis and speedy death.

It is also true that great improvement has been effected during the last ten years in the management of cows, in the care of the milk at the farms, and in transporting it to the city, but much still remains to be done. Certain vital points have until recently been overlooked. In Boston, under the supervision of Dr. Rotch, milk produced at farms under close medical supervision can be obtained. He has established the most complete and perfect laboratory in the world. Physicians, by simply writing a prescription stating the percentage of fat, casein, and sugar desired for any special case, can have it delivered daily in the form of absolutely pure, clean milk, the exact proportions of the various constituents having been determined with mathematical exactness. Such laboratories will no doubt soon be established in other cities, and will prove of incalculable aid in feeding infants and delicate children. In New York a few milk companies are selling a comparatively clean

milk obtained from farms where close attention is given to the housing and care of the animals and to the transportation of the milk. In most of these a few important points as regards the personal care of the animals and cleanliness in milking have been overlooked.

The most nearly perfect plan for procuring cow's milk designed for clinical purposes which has been carried into practical effect is probably that recently perfected by Dr. Henry L. Coit, of Newark, New Jersey. In describing this plan he refers to the folly of relying upon legal enactments, or even public opinion, to secure clean milk. It can only be obtained from dairies under the supervision of medical men. His plan includes several general requirements, each of which is very essential. It is, first, important that physicians should give their practical support to the movement, which must be conducted by a commission of physicians acting without pay and having no financial interest in the business, who shall endeavor to bring to the city a supply of milk produced under such regulations that purity will be assured. It is also necessary that dairymen possessing honor, financial ability, and dairy facilities should be induced to conduct their dairies in conformity with a code of requirements made by this medical commission and imposed by it in legal form. Such contracts should take into account the location and character of the land: the construction of buildings; the water supply; the health and breed of the stock; the housing, cleaning, and feeding of the cows; the collecting, handling, and cooling of the milk; and its bottling and transportation. Such a plan requires frequent personal inspection, and frequent examinations of the stock by a competent veterinarian. The milk must also be frequently subjected to chemical analysis and bacteriological tests. The question at once arises as to whether owners of dairies can be induced to submit to such regulations. The answer is plain. The milk business, like any other business, is carried on for profit. If dairymen find that it is more profitable to produce clean milk than foul milk, they will produce clean milk. The inducement to the dairyman will lie in the fact that his milk will be known as certified milk, and can be sold at an increased price and in larger quantities. These certificates of purity are to be given at stated intervals, signed by the members of the commission, the chemist, the bacteriologist, and the veterinarian.

Could such a movement be begun in New York, its results would undoubtedly be felt quickly. Bad methods result in part from ignorance and in part from carelessness. A few properly conducted dairies would do much to teach the average dairyman proper methods, while the increase of sales and higher price obtained would stimulate him much more. We understand that a committee of the Pædiatric Section of the Academy of Medicine has this milk question under consideration, and proposes to formulate rules for the guidance of dairymen in the endeavor to procure pure milk. It is a proper and commendable undertaking on the part of that section, which has a most vital interest in the subject. We fear, however, that results will be slight unless it is made apparent to producers that clean milk will pay.

A PRACTICAL COURSE IN HYGIENE FOR HEALTH OFFICERS.

REFERENCE has been made in these columns to the fact that very few of the medical colleges of the United States give instruction in hygiene. The fact that any physician may be called upon to fill an office that will demand of him the most comprehensive knowledge of the ætiology and the prevention of disease does not seem to be a sufficient reason for satisfying the demand that the student should receive thorough and systematic instruction in all that pertains to hygiene before graduation. In fact, recent events in medical circles in New York have been characterized by an implication that, like the poet, the hygienist is born, not made. That a physician is *ipso facto* an hygienist seems to be commonly accepted by the profession and the laity, though the physician himself finds that his official career is beset with errors and difficulties entailed by his lack of familiarity with the necessities of his office.

To give such assistance as was possible and desirable to physicians that had been called to fill the position of health officer, and that found themselves handicapped by reason of inattention to subjects a knowledge of which was of daily necessity, the surgeon general of the Marine-Hospital Service established tentatively during the past winter a school of practical instruction for State, county, and municipal health officers at the hygienic laboratory of that service in Washington.

The course is under the direction of the medical officers of that service on duty in Washington, and consists in instruction in practical bacteriology, with particular reference to the bacteriology of cholera and typhoid fever, the application of the different methods of disinfection, the principles of quarantine administration, the subject of immunity and disease, the examination of air, water, and soil, and such other practical subjects as pertain to a health officer's duties. This course is given without charge to any of the officials above specified, and it has been attended by health officers from Minnesota, Tennessee, and other States. The success that it has met with so far has induced the surgeon general to make it a permanent institution of the service, and he purposes issuing a general circular to health officials setting forth the plan and scope of this practical course in hygiene.

MINOR PARAGRAPHS.

THE ROTUNDA LYING-IN HOSPITAL OF DUBLIN.

A CLINICAL report of this well-known institution, one of the largest of its kind, for the three years 1889-'90, 1890-'91, and 1891-'92, has recently been read before the Irish Academy of Medicine by Dr. Smyly, master of the hospital. During the three years comprised in this report 3,602 women were confined in the hospital, of whom 37 died. In the first year 10 women died of some form of blood poisoning, or about 0.83 per cent., while among the 2,403 women delivered during the two subsequent years there was not a single death from this cause. Twenty-one cases of prolapsed funis took place, with 25 children, 8 of whom died, and there were 17 cases of placenta prævia—an average of 1 in 212. Eleven children were dead, and

one mother was lost by rupture of the uterus. Forty-four cases of accidental hemorrhage occurred, 5 of which proved fatal. The following is the line of treatment which is now adopted in these cases at the hospital: When labor pains are absent, the vagina is washed out with hot antiseptic solution (110° F.), the vagina plugged, and a binder applied. When labor pains set in, the membranes are ruptured and a foot is brought down, or, where practicable, forceps delivery or perforation performed. There are cases, however, which do not admit of any delay, and yet the os is not sufficiently dilated to deliver immediately *per vias naturales*. In such cases Porro's operation is the only method which holds out a hope of saving the mother's life. Post-partum hemorrhage occurred in 48 instances. Plugging the uterus with iodoform gauze was found an efficient substitute for the use of perchloride of iron. There were 107 forceps cases, or an average of 1 in 33.6; 29 of the children were dead. The largest child born weighed eleven pounds ten ounces, and measured twenty-two inches; and the longest umbilical cord measured forty-six inches, and was coiled four times round the neck.

EXPERIMENTS ON THE GENESIS OF EPITHELIAL CANCERS.

At a recent meeting of the French Academy of Sciences Dr. Henry Morau stated that he had been experimenting with regard to the aetiology of epithelial cancers since 1888. The *Medical Week* for July 14th formulates the results of his experiments as follows: 1. White mouse epithelioma is inoculable from one animal to another of the same species. 2. Hereditary influences play a very important part in the development of these tumors. 3. Secondary growths are apt to form in various parts of the body, and the development of these metastatic formations is favored by an injury to the tissues or organs. 4. Gestation produces the same effect as traumatism. 5. Certain toxins are produced in the substance of these tumors that are absorbed into the system and give rise to general cachexia. 6. These tumors apparently lose their virulence by successive transmission through a series of animals of the same species. 7. So long as the skin is unbroken these tumors are apparently free from bacteria. 8. Picric acid seems to exert a favorable influence on these tumors by coagulating the protoplasm of the cells, if injected interstitially.

IODIDE OF STRONTIUM.

In the *Times and Register*, Dr. Waugh reports that he has used this drug in two cases of non-febrile rheumatism. The patients had been treated with sodium salicylate with a fair degree of success, but the symptoms returned immediately upon the discontinuance of the remedy. He then substituted a treatment by means of strontium iodide, beginning with four drachms daily. The dose was reduced to one half as the symptoms receded. The result was gratifying, but, as both patients were residents of damp houses, the recurrence of the disease, at much longer intervals than before, was not prevented. The patients' general health was much better under the strontium treatment than under the use of salicylates.

ULCERATIVE ENDOCARDITIS AND GONORRHOEA.

The *Medical Week* for July 14th states that at a recent meeting of the Berlin Society of Physicians Professor Leyden reported the case of a man, aged twenty-two, who had contracted gonorrhoea, which had been followed by an attack of acute gonorrhoeal rheumatism toward the termination of which aortic incompetence had taken place. At the necropsy the

heart was found to present the appearances of ulcerative endocarditis and the kidneys those of parenchymatous nephritis, and there was a splenic infarct. The occurrence of ulcerative endocarditis in the course of an attack of gonorrhoea admits of two explanations: either the gonorrhoea is directly the cause of the endocarditis or the latter is the consequence of a secondary infection by the organisms of suppuration (staphylococci and streptococci) that become deposited on the endocardium and the valvular segments. In this heart a diplococcus was found in the interior of the cells in the vegetations that was decolorized by Gram's methods and morphologically resembled the gonococcus of Neisser.

THE UNIVERSITY OF PENNSYLVANIA.

It is said that the chair of clinical gynaecology in this institution, formerly held by Dr. William Goodell, has been offered to Dr. Charles B. Penrose. The hospital of the University will presently receive, by vote of the last Legislature, the sum of \$115,000, of which \$15,000 is specially appropriated for the maternity establishment. Other Philadelphia hospitals were liberally remembered at the same time.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 1, 1893:

DISEASES.	Week ending July 25.		Week ending Aug. 1.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	1	0	1
Typhoid fever.....	13	3	24	8
Scarlet fever.....	52	5	38	4
Cerebro-spinal meningitis.....	14	12	9	10
Measles.....	177	9	179	11
Diphtheria.....	99	37	92	27
Small-pox.....	11	1	2	0

The Colorado State Board of Medical Examiners gave notice on the 24th of July that thereafter it would recognize only diplomas from three-year schools as entitling their holders to a license, the courses to be of at least twenty weeks each and given in three separate years, a preliminary examination having been required and instruction having been given in anatomy, chemistry, physiology, pathology, materia medica and therapeutics, obstetrics and gynaecology, surgery, medical jurisprudence, theory and practice of medicine, and hygiene.

The Richmond Academy of Medicine and Surgery.—At the next meeting, on Tuesday evening, the 8th inst., the concluding portion of a discussion on The Influence of Polluted Water and Milk on Typhoid Fever will be opened by Dr. W. S. Gordon.

Change of Address.—Dr. Luther S. Harvey, to No. 32 Adams Avenue West, Detroit.

The Death of Dr. James O'Rorke is reported as having taken place at his home, in West Forty-sixth Street, on Sunday, the 30th ult. The deceased was a graduate of the Jefferson Medical College, of Philadelphia, of the class of 1847, a consulting physician to St. Vincent's Hospital, and a practitioner held in high esteem by his professional brethren and by the community.

The late Dr. James O'Rorke.—At a special meeting of the Medical Board of St. Vincent's Hospital, held on the 1st of August, 1893, to take action on the death of James O'Rorke, M. D., who for nearly forty years had diligently served as attending and consulting physician, the following preamble and resolutions were unanimously adopted:

Whereas, In the death of Dr. James O'Rorke the sick in the hospital, the good Sisters, and the Medical Board have lost a faithful, devoted, and wise adviser, who for more than half the allotted span of

human life had labored unceasingly, tenderly, and skillfully for the relief of thousands of sufferers, many of whom remember with gratitude his kind and gentle ministrations;

Resolved, That the members of the Medical Board signify their deep sorrow at the demise of their honored colleague, for whose integrity, sound judgment, and professional acquirements they have always entertained the greatest respect.

Resolved, That the Medical Board express to the family of the deceased its warmest sympathy in their sad bereavement.

Resolved, That a copy of these resolutions be transmitted to the family of the deceased.

Resolved, That this action of the Medical Board be published in the medical journals.

[Signed.] JOHN A. MCCREERY, M. D.,
Secretary of the Medical Board.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 16 to July 29, 1893:*

WOOD, LEONARD, Captain and Assistant Surgeon, is relieved from duty at Presidio of San Francisco, Cal., and ordered to Fort McPherson, Georgia, for duty.

CRAMPTON, LOTIS W., Captain and Assistant Surgeon, is relieved from duty at Fort Spokane, Washington, and from temporary duty at Headquarters Department of the Colorado, and ordered to Baltimore, Md., as attending surgeon and examiner of recruits, relieving EWING, CHARLES B., Captain and Assistant Surgeon.

GLENNAN, JAMES D., First Lieutenant and Assistant Surgeon, is ordered to report to the President of the Examining Board for examination for promotion.

CLEARY, PETER J. A., Major and Surgeon, is granted leave of absence for four months on surgeon's certificate of disability.

BRADLEY, A. E., First Lieutenant and Assistant Surgeon, is ordered to report to Lieutenant-Colonel Dallas Bache, Deputy Surgeon General, President of Examining Board, at Omaha, Neb., for examination for promotion to the grade of captain.

CLARKE, J. T., First Lieutenant and Assistant Surgeon, will, on the abandonment of Camp Poplar River, Montana, proceed to Fort Sully, South Dakota, for temporary duty, and on return of First Lieutenant Bradley proceed to and take station at Fort Omaha, Nebraska.

DE WITT, CALVIN, Major and Surgeon, is granted leave of absence for one month, to take effect between the 15th and 30th inst. Par. 2, S. O. 78, Headquarters Department of Texas, July 11, 1893.

JOHNSON, RICHARD W., Captain and Assistant Surgeon, will report on or before August 6, 1893, to the commanding officer, Fort McHenry, Maryland, for temporary duty at that post during the absence of EWING, CHARLES B., Captain and Assistant Surgeon.

MAUS, LOUIS M., Major and Surgeon, is granted leave of absence for one month, to take effect when his services can be spared at Fort Wingate, New Mexico.

TEN EYCK, BENJAMIN L., First Lieutenant and Assistant Surgeon, is granted leave of absence for two months, to take effect on or about September 15, 1893, with permission to apply for an extension of one month.

DAVIS, WILLIAM B., Captain and Assistant Surgeon, is relieved from duty at Fort Sam Houston, Texas, and ordered to Fort Brown, Texas, for duty, relieving TORNEY, GEORGE H., Captain and Assistant Surgeon. Captain Torney, upon being relieved by Captain Davis, will proceed to and take station at Philadelphia, Pa., as Attending Surgeon and Examiner of Recruits at that place.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending July 29, 1893:*

BAILEY, T. B., Passed Assistant Surgeon From Philadelphia Hospital and to the U. S. Steamer Machias.

JONES, W. M., Medical Inspector. From League Island Navy Yard and to wait orders.

COOK, G. H., Medical Inspector. To the Navy Yard, League Island.

DICKSON, S. H., Surgeon. From Marine Barracks and to the Dolphin, temporarily.

RIXEY, P. M., Surgeon. From the Dolphin and granted temporary leave. GATEWOOD, J. D., Passed Assistant Surgeon. Temporary duty at Marine Barracks.

WENTWORTH, A. R., Passed Assistant Surgeon. From the Atlanta and granted leave.

FARWELL, W. G., Surgeon. To temporary duty on the Franklin.

HIBBETT, C. T., Surgeon. From the Franklin and to the Detroit.

BROWNELL, C. W., Assistant Surgeon. Ordered to Receiving-ship St. Louis.

BABIN, H. J., Surgeon. Ordered to temporary duty at Naval Station, Port Royal, S. C.

ALFRED, A. R., Assistant Surgeon. Detached from the Franklin and ordered to the Minnesota.

MOORE, J. M., Assistant Surgeon. Detached from Norfolk Hospital and ordered to the Franklin.

KERSHNER, E., Medical Inspector. Assigned to duty on board the U. S. Steamer New York.

URIG, J. F., Passed Assistant Surgeon. Assigned to duty on board the U. S. Steamer New York.

WILSON, H. D., Assistant Surgeon. Detached from the Minnesota and ordered to the New York.

KIDDER, B. H., Medical Inspector; WELLS, H. M., Medical Director; ANDERSON, FRANK, Surgeon; and BIDDLE, CLEMENT, Passed Assistant Surgeon, granted leave of absence.

Answers to Correspondents:

No. 410.—1. Scrub the lower portion of the abdomen, the mons Veneris, and the external genitalia with soft soap, shave off the pubic hair, and then scrub the parts with ether to remove fatty matter, and then with a solution of bichloride of mercury. Determine the position of the pubic spines and make a vertical incision with a scalpel over the center of the symphysis pubis and down to the ligament. Then introduce a curved probe-pointed bistoury below and behind the symphysis until it can be felt under the pubic arch, and cut from below upward and from within outward until the fibers of the symphysis are cut through. Dust the wound with iodoform or aristol and after delivery dress aseptically. See leading article in the *Journal* for July 17th.

2. Yes. The decomposition would not occur so quickly in new tin basins as to affect the antiseptic property of the solution. The infection you speak of was due to other causes.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Meeting of June 6, 1893.

The President, Dr. M. ALLEN STARR, in the Chair.

Convulsive Tic.—Dr. J. F. TERRIBERRY presented a man, aged thirty-nine years, married, a gravel-roofer, whose father had died of senile gangrene and his mother of hemiplegia. He was one of a family of fourteen children. Three brothers had died from the effects of excessive use of alcoholic stimulants; the other members of his family were living and well. The patient's previous health had always been good; until within the past nine years he had used alcoholic stimulants and tobacco excessively; he denies venereal disease; there was no history of rheumatism.

Between eight and nine years ago he had noticed slight twitching of the muscles about the left eye; this had gradually become more marked, extending to the muscles of the cheek, and in a short time all the muscles of the left side of the face had been involved in a spasm. There were intervals of an hour or two between the jerks; his wife stated that they were present during sleep. The trouble was aggravated by talking

and emotional excitement. A careful examination failed to reveal any organic trouble, either central or peripheral, in the course of the seventh nerve that could act as a cause. There had, however, been decided nasal obstruction on the left side, which had been removed by Dr. C. H. Knight. Some errors of vision also had been discovered, which had been corrected by Dr. Adams. The spasm of the facial muscles, however, had in no way been affected by the correction of these defects. The operation of stretching the facial nerve had been advised and had been performed on January 5, 1893. The patient had been etherized and the nerve stretched after the method described by Baum, in which the nerve is exposed by incision behind the ear. A weak faradaic current greatly facilitated the search for the nerve. When it was found it was picked up with a blunt hook and stretched, the force employed being variously estimated at from four to seven pounds. The immediate result of the operation in this case had been, as had been expected, complete paralysis of the muscles of the left side of the face. There had been no effect upon the hearing, the taste, or the palate muscles, showing that the effects of the traction had not been felt centrally. In the latter part of March a gradual return of voluntary control of the facial muscles had been noted, and this had steadily increased. The last electrical examination had been made on the day of the meeting, and the muscular reactions had been found to be good. With the exception of the occipito-frontalis, which was a trifle less active than its fellow on the right side, the face movements were perfect. There had been no return of the spasm since the operation.

The operation of stretching the facial nerve was introduced by Billroth and Nussbaum in 1872. Thus far (including the present one) twenty-three cases had been reported. Temporary facial paralysis had followed the operation in all cases.

Dr. A. E. ADAMS said he had examined the man's eyes a number of times. There had been slight muscular insufficiency and hypermetropia of the right eye. The correction of these ocular defects by means of glasses had produced only a temporary improvement in the spasm of the facial muscles.

THE PRESIDENT referred to the fact that in some of these cases a cessation of the muscular spasm could be produced by pressure upon one of the three branches of the fifth nerve.

A Consideration of the Paræsthetic Neurosis.—Dr. JOSEPH COLLINS read a paper with this title, based on an analysis of forty-three cases. He had endeavored to exclude from these statistics cases of acro-neuroses which, while they presented some of the symptoms of paræsthetic neurosis, had other individual and more pronounced symptoms of their own.

The clinical picture of paræsthetic neurosis was as follows: The sufferers from the affection were in fairly good health; were it not for the paræsthesia, they would not have occasion to consult a physician. The paræsthesia which they complained of were made up of gnawing, boring, and "pins and needles" sensations in the extremities, particularly the upper, involving the fingers, hands, and forearms, often of both sides, but not infrequently of only one. These sensations were not limited to the distribution of any one particular nerve in the extremity, but spread over the entire member with equal intensity. There was rarely any pain in the sense in which that word was ordinarily used. There were no fairly constant objective phenomena. Occasionally the circulation of the extremities was evidently somewhat sluggish. There was absolutely no tenderness on pressure over any of the nerves of the part, and there were no perceptible changes of a trophic or degenerative nature. The affection showed itself intermittently, in paroxysms, and the period of the twenty-four hours when an attack was most likely to occur was from four to six in the morning, the perverted sensation at this time sometimes becoming so severe as to awaken

the patient and put an end to any further rest. Another favorite time was a corresponding hour in the afternoon. The work that the patient was doing seemed to have a very close relationship to the onset of an attack. In some patients it could always be precipitated by sewing, washing, or scrubbing. There was no loss of sensibility or of muscular strength; the patients complained, however, that the strength of their arms was more easily exhausted than formerly. The average age of these patients was just above thirty-nine years. The disease was much more common in women than in men. The most striking factor in the ætiology of the disease was the occupation; of the women, about seventy-five per cent. did either washing, scrubbing, or needlework. Neither heredity nor neuroses (such as hysteria, neurasthenia, etc.) seemed to be associated with this form of hyperæsthesia. No particular disturbance of the digestive functions was noticed. When alcohol was apparently a causative factor of the paræsthesia, Dr. Collins thought it should be classified under the toxic variety. What relationship this form of paræsthesia bore to autotoxemia and the lithæmic constitution was not easily decided. The author doubted if there was any closer relationship between it and the lithæmic diathesis than there was between lithæmia and the development of neurasthenia or some of the vaso-motor neuroses. Gout and rheumatism did not seem to have any causative relationship. Bodily fatigue, overexertion, poor nourishment and ventilation—in fact, anything that lowered the vigor and health of the body—were powerful predisposing factors.

Dr. Collins suggested the following classification of the paræsthetic neurosis, and illustrated each class by giving the history of a typical case that had come under his observation. The classification was founded principally on an ætiological basis: 1. The emotional type. 2. The mental. 3. The neurasthenic. 4. The toxic. 5. Walking numbness (?). 6. The type which might be called an occupation paræsthesia, as it was so often associated with a certain class of occupations. Regarding the treatment of this latter form of paræsthesia, to a consideration of which the paper was mainly confined, there was no specific remedy. Prolonged rest appeared to be the most beneficial agent, particularly when restorative treatment was added. The administration of neurotics and depressants, such as antipyrine, phenacetine, and the like, Dr. Collins considered positively harmful. The use of the faradaic current in the shape of the local bath had proved beneficial in some cases. Spring waters and mineral acids he had not found to be of value. The plan of treatment which was most beneficial was regulation of the diet, particularly by limiting the nitrogenous foodstuffs, a quiet, outdoor life, change of occupation and habits, and the administration of restoratives.

Dr. J. A. BOOTH said that the cases of paræsthetic neurosis that had come under his observation he had been accustomed to group under the headings of neurasthenic, anæmic, lithæmic, and those occurring at the menopause. Among the lithæmic cases he had noticed, contrary to the experience of Dr. Collins, that the condition was often associated with marked digestive disturbances. These patients had been improved and quite a number of them cured by correcting the diet, the use of mineral acids, and the application of the faradaic current by means of the brush. The cases embraced under the various other headings had been treated symptomatically.

Dr. MARY PUTNAM JACOBI said that in the cases narrated by Dr. Collins the symptoms pointed to a depression of the nervous system, and seemed to justify the remark of Gowers that the fundamental cause of all paræsthesia was a diminished resistance of the ganglionic cells. The depressing influences which Dr. Collins had mentioned certainly acted primarily upon the nerve centers and the cortex, and only as a conse-

quence of this would they lower the blood pressure and cause these vaso-motor disturbances, which were always secondary. The speaker referred to a case of paræsthesia of the abdomen that had come under her observation. The patient was a woman who had suffered from dyspepsia for about eight years. She was very thin and weighed seven-eighth pounds. She suffered from flatulence, nausea, and constipation, but the symptom that particularly depressed her and kept her in a state of misery was what she called "horrible sensations" of burning and tingling all over the abdomen, as though worms were running about under the skin. The abdominal walls were so thin that one could almost see the intestines through them. It seemed as though the intestines were not sufficiently protected and supported by the abdominal wall. An elastic bandage was ordered with which to support the abdomen. The wearing of this was followed by an immediate cessation of the disagreeable sensations; the woman was also enabled to take more nourishment and rapidly gained in strength and weight.

Dr. E. C. SÆGIN said he felt rather inclined to attribute the condition of paræsthesia to an imperfect nutrition of the cerebral or spinal nervous system. The abnormal sensations were usually distributed over a considerable area; it was very seldom that they were confined to the space supplied by a single nerve. His experience with cases of paræsthesia of the hands or arms was rather against the theory advanced by various writers that the condition was apt to follow the more or less constant immersion of these extremities in water. In one case—that of a clergyman suffering with paræsthesia of both arms and forearms—the symptoms had disappeared after a period of complete mental rest and the use of alkalies internally. There was no history of gout or a gouty diathesis in this case. Rest, particularly mental rest, the speaker had often found to be an important element in the treatment of these cases.

Dr. COLLINS stated that out of one hundred and seventy-three cases of occupation paræsthesiæ collected by him, about one hundred had been in washerwomen or needlewomen, and in a number of these cases the symptoms had been brought on by immersion of the hands in water. The fundamental cause of these abnormal sensations was probably a vaso-motor one, and when they occurred in lithæmic patients the lithæmia was possibly a coincident manifestation of the blood perversion which gave rise to the paræsthesia itself.

New Hypnotics.—Dr. WILLIAM D. GRANGER read a paper on this subject. He stated that an ideal sedative would give sleep at regularly recurring periods and for a definite period of time; this sleep would be natural, strengthening, and restorative; it would not be harmful to life or injurious to health, and it would not produce a habit, but would restore the patient to a condition of getting sleep without the use of drugs. Such a drug was unknown, and there was none that closely approached this definition.

In considering new sedative remedies, little need be said of the bromide group, which were valued mostly for their usefulness in the treatment of epilepsy. It was in the group of remedies best represented by chloral, and called the alcohol and chloroform group, that the great crop of new remedies was found. In their hypnotic effect the part of the brain representing the higher cerebral processes was first involved: first the cortex; lastly the respiratory and cardiac centers. Those were the best hypnotics that acted first and strongest upon the cortex, dulled the sensibilities, both from within and from without, lessened voluntary muscular activity, and influenced but little the vascular system and blood pressure. Among this group of hypnotics might be mentioned bromal hydrate, which was said to be more dangerous than chloral and had but little

value; and chloralamide, which was less depressing than chloral, although serious collapse had followed its use. It produced quiet and refreshing sleep, with no unfavorable after-effects. It was not so certain in its action as chloral, and it did not act so promptly. The dose was from thirty to forty-five grains. It was useful as an alternative to the other hypnotics. Chloral ammonium, in doses of from fifteen to thirty grains, was said to be non-depressive and was a good hypnotic. Hypnotism had the reputation of uniting the analgesic effects of antipyrine and the hypnotic effect of chloral. It was useful when sleeplessness and pain were combined, and the employment of opium was contraindicated. The dose of the drug was from fifteen to thirty grains. Urethane belonged to the ethyl group; it was useful in the milder cases of insomnia and for purposes of change; the dose was from twenty to thirty grains. Sonmal was an alcoholic solution of chloral and urethane, and was of little value. The dose was half a drachm. Paraldehyde could not be classed among the newer drugs; with chloralamide, it was the only drug comparable with chloral in hypnotic power. They would win their way in the most difficult cases, and were valuable in all cases of insomnia. Sulphate of duboisine was being used as a substitute for hyoscyne. It had been asserted that it gave more natural sleep and was less depressing. Sulphonal, tetronal, and trional were so closely related that they might be considered together. Almost every one had a place for the first. It had marked hypnotic power. In ordinary doses it seemed to be safe. Its long-continued use was to be avoided, not so much that it quickly lost its power, for it did not, but that it was dangerous to health. Its action was often slow, for, even if taken in the hottest water, it sometimes seemed to be precipitated in the stomach, unless quickly absorbed. Its effects were frequently long-continued, and the second dose often acted better than the first. It was a pure hypnotic, but it was less powerful than chloral. It was of little value where sleeplessness was associated with pain. Trional and tetronal were akin in many respects to sulphonal. They were all true hypnotics and were at present attracting some attention.

By study and comparison we must adapt the agent to the individual case. Experience alone would bring order out of confusion. In conclusion, we must remember that sedatives were not to be found in the pharmacopœia alone, and he who relied upon drugs exclusively for the production of sleep was in advance doomed to failure. The treatment of sleeplessness went far beyond the giving of drugs, and all hypnotic remedies—new and old—were made doubly valuable by studying the individual and using such adjuncts in the treatment of the condition as were indicated.

Dr. LYON said that among the insane sleeplessness might depend on various causes, and we should not expect any one hypnotic to meet all the indications. In the institution for the insane with which he was connected a variety of hypnotics were employed. In some cases, where there was much excitement, hyoscyne in small doses exerted a very good effect. Where the patients were considerably exhausted, chloralamide was given dissolved in whisky. Sonmal was efficacious where there was a disposition to sleep but inability to do so.

Dr. J. W. BRANNAN said he could only discuss this question from the standpoint of the general practitioner. Sulphonal, codeine, and hyoscyne were the only hypnotics with which he had had much experience. In a case of delirium tremens he had seen very good effects follow the use of hyoscyne, in doses of $\frac{1}{15}$ of a grain, the patient becoming quiet and much more comfortable. It seemed to relieve the nervous symptoms. Two or three years ago he had begun to experiment with chloralamide, but the first patient to whom he administered it had complained so severely of an intense headache after a

thirty-grain dose that he had never felt inclined to use it since. Smaller doses than this did not appear to have much effect.

Dr. SEGUN said that his experience with hypnotics, like Dr. Brannan's, was limited to patients outside of the asylum. He had always made it a rule to defer the use of narcotics as long as possible. He had found that many cases of insomnia were amenable to general treatment and encouragement and the assurance that a little sleep without the aid of drugs was better than a long sleep with them. Hyoscine or hyoscyamine was indicated where there was great motor excitability associated with insomnia, as in paresis or delirium tremens. Given hypodermically, this drug certainly did procure sleep sometimes in the most magical way. In one case he had seen $\frac{1}{10}$ of a grain completely relax a paretic and produce sleep in half an hour. The effect of the drug seemed to be a paralytic one. Sulphonal should be administered four or five hours before bedtime. The bromides should never be employed for the purpose of producing sleep.

Dr. GEORGE W. JACOBY said he had seen several patients who were in the habit of taking half a drachm of paraldehyde nightly without any particular bad effects following. One woman had continued this for over a year before she was able to break up the habit.

Dr. TERRIBERRY said that in one case of melancholia that he had seen the usual dose of paraldehyde administered had been forty-five grains. On two occasions the patient had doubled the dose and on one occasion he had tripled it; this had been followed by very decided symptoms. As regarded the time for giving sulphonal, one of his patients slept in five or ten minutes after taking the drug.

Dr. BRANNAN thought the theory had been generally accepted that sulphonal was not absorbed until it reached the intestines, and that it took three or four hours to get the effects of the drug.

Dr. L. STIEGLITZ said he had employed trional in about thirty cases in dispensary practice with very good success. The usual dose was fifteen grains. He considered it more reliable than sulphonal.

The PRESIDENT said he was in the habit of ordering sulphonal to be taken an hour before bedtime, and always in connection with some article of food. When it was given on an empty stomach its effects were much delayed. He agreed with Dr. Seguin that hyoscine should be used only where there was great motor excitement; it acted as a poison to the entire system, paralyzing all the functions. He had employed trional, but had been very much disappointed with the results obtained from it.

Dr. COLLINS said he had given trional a thorough trial, in doses of from twenty to forty grains, and obtained no results from it whatever. It was a very expensive drug and did not compare in any way with chloralamide or sulphonal.

Dr. GRANGER stated that he was in the habit of giving sulphonal from two to five hours before bedtime. In order to get its effects quickly, it should be administered in very hot water, with the hope that it would be absorbed in the stomach before precipitation occurred.

versity, etc. With Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xviii-9 to 636. [Price, \$3.]

It is not often that a work on insanity is published in America written by one competent, through long practical experience in the care of the insane as well as through teaching morbid psychology, to give to the profession a book which is recognized at once as a valuable contribution to literature and a trustworthy guide in dealing with the mental cases coming under the observation of the general practitioner. We remember how Audubon in his autobiography expressed his disapprobation of the closet naturalists who, never going into the field to study Nature in her own haunts, worked in their libraries and compiled books on subjects of natural history as unfamiliar to them as the nebula of Orion to a tadpole, so far as personal investigation was concerned.

Insanity is a subject with which one can not become thoroughly conversant by reading only, and it is not sufficient to see a few cases in a dispensary or office. The expert alienist must be one who, by long residence among the insane, has acquired a perfect knowledge of every phase of the morbid mind, and by practical experience has become qualified to judge of and treat the diverse psychological conditions to be met with among the insane. Dr. Stearns is an expert by virtue of his position as medical superintendent of a large asylum, and not because he chooses to call himself an expert for financial reasons. His book is the result of his being an expert alienist, and is not written as a mere advertisement to gain such a position. This work, then, must take a position similar to those of Krafft-Ebing, Kirchoff, Blandford, Clouston, Savage, and Bevan Lewis. Though not so great a book as some of these, it has an equal title to be considered authoritative. It is to be hoped that others of our American alienists—such as Hurd, Andrews, Godding, Kellogg, and Blumer—will give to the profession the valuable experiences they must have garnered during the long years of their asylum careers, for there is a dearth of works of this kind from the hands of competent American observers. We cordially recommend this volume to the profession as the best book of its kind published on this side of the Atlantic.

On Snake Poison. Its Action and its Antidote. By A. MUELLER, M.D. Sydney: L. Bruck, 1893. Pp. vi-85.

The author of this brochure has accepted the theory that snake venom acts as a specific nerve poison, depressing and more or less suspending the function of the motor-nerve centers. He therefore urges, as did L. Lanszweert in 1871, that strychnine, a motor stimulant, should be administered hypodermically in sufficient quantity to overcome the influence of the venom. The author cites a number of cases of poisoning by snake-bite that were successfully treated in this fashion. He particularly deprecates administering the strychnine in doses so small that the patient will not be benefited thereby. Within a few months we have published selections from the Australian medical journals showing that Dr. Mueller's plan of treatment is held in high favor by many practitioners, and that it is employed extensively. It is to be expected, therefore, that its real value will soon be ascertained and made known.

The Mastoid Operation, including its History, Anatomy, and Pathology. By SAMUEL ELLSWORTH ALLEN, M.D. Cincinnati: Robert Clarke & Co., 1892. Pp. vii to 111.

THE contents of this brochure are sufficiently and fully indicated by the title page. It will suffice to say of it that it is carefully and well written. The illustrations, chiefly anatomical, are excellent. The aurist, the surgeon, and the neurologist should possess it.

Book Notices.

Lectures on Mental Diseases, designed especially for Medical Students and General Practitioners. By HENRY PUTNAM STEARNS, A. M., M. D., Physician Superintendent of the Hartford Retreat, Lecturer on Mental Diseases, Yale Uni-

New Inventions, etc.

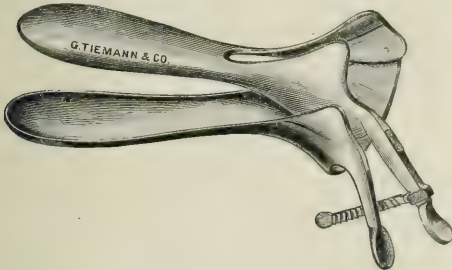
A NEW ASEPTIC VAGINAL SPECULUM.

BY D. TOD GILLIAM, M. D.,
COLUMBUS, OHIO.

I OFFER no apology for introducing this instrument, for the reason that other specula have not, or at most have only in part, met the indications for which this was devised. These indications are:

1. Asepsis.
2. Portability.
3. Ease and facility of operation.

As will be seen by the accompanying cut, it consists of three pieces: an upper and lower segment—*i. e.*, blade and handle—and the spring ratchet. The two segments are so arranged that when the blades are separated to their fullest extent and the handles are brought together they can be lifted apart for cleansing or convenience of carrying. There are no screws, springs, or other complicated device, and absolutely nothing to get out of order. The steel-spring ratchet is denatured on the side—the concealed side—and when not in use lies alongside the handle and is entirely out of the way. When in use it is opened out like a penknife at right angles to the handle with its teeth applied to the catch on the opposite handle. It is thrown on and off the catch by the index finger of the right



hand, while with the thumb and middle finger the handles are compressed to open the speculum. These movements are accomplished with the greatest ease and facility. Patients express a preference for the ratchet, claiming that it does not make them so nervous. The speculum does not become loose and rickety by use as do those put together with screws, being always firm and smooth of action. Above all is the facility with which it can be taken apart for cleansing. All that is necessary is to throw the ratchet off the catch, seize a blade in either hand, open until the handles touch each other, and lift apart. This is all done in a second. It can now be thoroughly cleansed with a brush, soap, and water, and all the evils incident to the use of an unclean instrument obviated. An instructive chapter might be written on the subject, for while all operative gynecologists are extremely cautious in the use of clean instruments, many others habitually use infected specula, and their patients pay the penalty, not always, to be sure, in fulminant sepsis, but usually by slowly advancing poison through the vagina, uterus, and tubes, with results scarcely less disastrous. In selecting the model of blades I have patterned after the Brewer, which for ease of introduction, perfect exposure of cervix, facilities for manipulation, and degree of expansion without painful pressure on the sensitive parts at the introitus vaginae is well-nigh perfection. I am indebted to Messrs. George Tiemann & Co., N. Y., for valuable suggestions in bringing the instrument to its present degree of perfection.

Miscellany.

The Influence of Prejudice and Criticism on the Progress of Gynecology was the title of a presidential address delivered at a meeting of the North of England Gynaecological and Obstetrical Society, held in Sheffield on February 17th, by Dr. W. Japp Sinclair, of Manchester, and published in the July number of the *Sheffield Medical Journal*. In the course of his address Dr. Sinclair said:

"By prejudice in this relationship I mean that mental condition, partly inherited, partly acquired, which renders us almost or altogether impervious to new ideas and new knowledge, or makes us receive it through such refracting media that we see it as it is not. The outcome in action of such a frame of mind is either to ignore methods of treatment which may be advantageous, and therefore to fail in doing the best possible for our patients, or to so modify and misapply them as to do harm with what should have been useful therapeutic instruments.

"There is an intermediate state between undiluted prejudice and the genuine critical attitude of mind which often gets credit for being the latter, of indicating strong independence of intellect, and of which we have had many distinguished concrete examples among British gynecologists—that is, the supercilious absolutely impervious frame of mind. The mind becomes a mere page of formulae, the great man himself a Tithonus among the immortals. 'The tendency of the ordinary human being is to believe too much. This inborn credulity is checked and abridged by our experience; we soon discover that we have been assuming too much, and by degrees we abate our confidence and adapt our views to the reality of things.' This is the ordinary healthy development which makes for true knowledge, but there is a class of mind which looks upon every new experience in the way of abatement of confidence as a sort of insult and very early rebounds to the other extreme. It does not become selective and critical, but impervious. It reaches a sort of mental climacteric and ceases to conceive or even to permit the approach of germs of living knowledge. Our best examples of this condition of intellect are usually distinguished members of their profession, who are mistaken for giants of logical acumen by the non-critical practitioners and the public. It is not intellectual perspicuity and sound judgment at all—it is mere pseudo-skepticism, the worst form of prejudice, because it is the most obstructive and mischievous.

"As to criticism in reference to the class of subject with which the gynecologist has to deal. It is of course the same as applied to all medical subjects; but there are some peculiarities in its scope and applications which we may note and exemplify. It implies, first of all, a certain amount of knowledge and experience as its basis, such as the average mind may become furnished with by a certain amount of industry and from the lapse of time. It implies a certain clearness of intellectual vision as well as intellectual honesty combined with the power to suppress the emotional side, which always tends to bias the intellect and lead to false conclusions. If it is to do the highest service in the cause of medical science it must be disinterested; and this is the criterion, as far as our ordinary experience goes, with which medical criticism has the greatest difficulty in complying. 'The first essential of knowledge is that it be true.' The truth or falsehood of statements contained in an ostensible contribution to knowledge is to be made out for ordinary practical purposes by analysis and comparison of the elements contained in it with knowledge already acquired. If there be anywhere contradictions there is falsehood. In a practical subject we can not expect all to meet to the fullest extent the logical criteria of truth, but the function of criticism here is to estimate the relative amount of truth and error; for on this relation depends the value of the presumed contribution to knowledge.

"If this process be difficult when we are applying the criticism to the work of a friend, or disciple, or teacher, how much more severe the task must be in dealing with our own work! Indeed, it is the want of intellectual honesty and clearness in seeing ourselves as others see us which chiefly stands in the way of the application of that criticism which would prevent so many contributions to medical

literature from ever seeing the light. Few men have the gift of being hard on themselves. If the intellectual qualities required for the maintenance of this attitude were more generally diffused, medical literature, especially of the hebdomadal journalistic sort, would be less copious and tedious; but with the loss of material we should also have to count on some loss of amusement, and of that lazy semi-derivative interest which our weekly journals so largely afford us."

"We can hold such conservatism [as that of the late Dr. Matthews Duncan] in respect, for it is honest from the moral side, and it almost invariably implies a large endowment of the power of analysis and sense of proportion from the intellectual side. But there is a common force at work and influence concerning which we can have nothing but the strongest terms of condemnation and resentment. This is the influence of *personal animosity* disguised in the terms of apparent impartial criticism. Take one or two illustrations, which I shall not set down as positively proved examples of bias of judgment by personal ill-will. You can judge for yourselves.

"(1) You are aware that nearly twenty years ago Emmet, of New York, proposed a simple operation for the cure of lacerations of the cervix uteri and the changes in the cervical portion of the uterus which result from these injuries. It was an operation which 'caught on' in America and was abused, but it did not obtain the recognition which it deserved in England. In a recent work on gynecology there is a page which might be an excerpt from a mediæval monograph, so obsolete and erroneous are its statements on the subject of 'ulceration of the womb.' Referring to laceration, it goes on to say: 'A well-known American gynecologist has conceived the idea that this rent is the cause of all the mischief, instead of being a mere incident which is not of the slightest consequence in itself. A great flood of operations has in consequence gone through the practice of gynecology of recent years for the stitching up of this innocent fissure. The real trouble is in the subinvolution and the consequent chronic metritis, as we shall see by and by, and nothing more useless than "Emmet's operation" has ever been introduced into surgical practice.' Now, this language does not sound like fair criticism; it has an emotional ring about it. To one who has frequently performed Emmet's operation, and seen it cure cases in which the tortures of the ordinary treatment of 'ulceration' had been applied for years, it absolutely and completely discredits the judgment of the writer. But the key to the vigor of the language used seems to me to do much more; it forces upon our attention the element of personal animosity in the guise of criticism. When calling upon Emmet a few years ago I learned the details of a personal quarrel between the author of the operation and the author of the book. The merits of a quarrel are never known till both sides have stated all the truth, but, as far as I understood them, the American gynecologist might well be angry and sin not.

"(2) In spite of the prejudice excited against it by American ex-cuses, Emmet's operation has been adopted in Germany to a considerable extent, much more widely than in the United Kingdom. One voice, as far as I can hear, only one, is raised against it, and the paper in which objections were urged to the operation called forth several strongly worded remonstrances, notably that of Sanger, of Leipsic. In 1887 a paper was read at a medical congress at Wiesbaden on the subject of laceration of the cervix, and the writer gave it as his opinion that laceration of the cervix and Emmet's useless operation would disappear from our nosology and practice. Now, probably few who heard or read that paper were aware that the originator of the operation and the critic were formerly rivals in gynecological practice in the same city, and that the Irishman and the German had been on unfriendly terms over an operation introduced and practiced for a short time by the German and anathematized by the Irishman. These incidents speak for themselves. If the criticisms and the personal hostility are not cause and effect, it is a pity for the dignity of gynecological practice that the critics, knowing that grounds of offense existed, did not exhibit a little more reticence, to say nothing of justice, in their strictures."

"Another aspect of practice under which we see the influence of bias is in the hostility of those whose names have become associated with an operation or method of treatment to the introduction of any modification or change, or even improvement. It is the bias of the *beati possidentes*. Here, as a rule, prejudice attains its most respectable position; it tries to use the language of criticism, but its sayings are the mere conventionalities of the formalist who assumes he has reached finality. It is loud and confident, but it means little, and occasionally becomes almost fatuous. It is Saug the joiner that we hear, not the lion; and yet the voice has occasionally succeeded in frightening the gynecological crowd!

"(1) Take, for example, in the first place, the reception given to the electric treatment of uterine disease, especially fibroid tumors, in this country. Contrast the moderation of the language in which Apostoli introduced his careful experimental work to the profession in England with the language of Mr. Knowsley Thornton and Mr. Lawson Tait, as representing the interests opposed to it, and you can not but feel ashamed of the representatives of English gynecological surgery. Mr. Lawson Tait's references to his work of over twenty years before, and his testimonials in support thereof, are a thing *pour rire*, but his attack on M. Apostoli's reputation and professional position in Paris belongs to a different category. I am not discussing the merits of the electric treatment of uterine disease; I merely give illustrations of the methods by which science is not advanced. It is a pleasure to turn from the speeches and letters of the surgeons named to such specimens of the better criticism, the results of thought and experience and knowledge exhibited in the speeches of Dr. Playfair and Dr. Inglis Parsons, when the subject was under discussion at the meeting of the British Medical Association at Leeds in 1889. Much has been done since then in modifying methods of application of the treatment and opinions concerning it, but Dr. Playfair's first point in his summary still stands as just and true as when it was first uttered. 'The continuous current is capable of effecting much good in certain selected cases, otherwise little amenable to treatment; and its introduction is, therefore, a distinct gain to gynecology.' His objections and modifications of this statement stand equally true. I have no hesitation in saying that on the question of Apostoli's treatment the profession in England have been simply bullied out of the belief in their own observations and judgment on a method of dealing with disease which was *prima facie* not unscientific.

"It has been alleged by one of the most bitter opponents of Apostoli that he was unknown in Paris in 1888. I can speak from personal knowledge that he was respected and consulted by some of the chief surgeons in 1889; and in the end of that year Lucas-Championnière published his results strongly supporting Apostoli, while he admitted, as Apostoli did himself, that a considerable proportion of cases were not amenable to his treatment.

"How true it is that under the influence of prejudice, which may take the form of self-interest under the most unlikely circumstances, we succeed in seeing what we went out to look for!

"(2) Another illustration of how the tenacity of opinion in favor of some method of treatment or operation with which we are familiar and satisfied stands in the way of further improvement is to be found also in the surgical treatment of fibro-myomatous tumors of the uterus. Among the best-known operators, the men who see their way to go through the largest amount of material, are, I presume, Mr. Knowsley Thornton and Mr. Lawson Tait. They stick to the barbarous appliance called Kœberlé's *serre-naud*. Its application merely consists in constricting some part of the uterus, below the tumor if possible, with a piano-wire, and tightening up the rope from hour to hour or from day to day until the gangrenous mass falls off. This is the extraperitoneal method, and fairly ranks with the use of the clamp in ovariectomy. Attempts have been made from time to time to apply an intraperitoneal method. I have taken a deep interest in the efforts at improvement, and have carefully watched the reports of cases. There is much reason to believe that before long the intraperitoneal method will be recognized as the best in the few cases in which operation is justifiable, and the barbarous old appliances discarded. Yet even so recently as the last meeting of the British Medical Association at Nottingham,

what help toward progress do we get from the hysterectomists? Mr. Knowsley Thornton says (*British Medical Journal*, February 11, 1893): 'Theoretically, this (the intraperitoneal) is a perfect method . . . ; but practically it has certain great difficulties and dangers.' These, he says, are prevention of hemorrhage immediately, or later, 'as the uterine tissues contract,' and making 'the inside of the stump thoroughly aseptic.' The last objection is put on the ground that the mucous membrane, which, he does not seem to be aware, contains no bacteria, 'may acquire putrid material.'

"During a discussion on the 'present position of abdominal surgery' at the Medical Society of London three years ago, the question of intraperitoneal treatment of the stump in hysterectomy for fibroids was referred to. Mr. Lawson Tait severely remarked upon some observations of Mr. Treves; he said: 'He [Mr. Treves] says that he has made flaps, tied vessels, fastened the flaps together, and dropped the stump back in the abdomen with good results. This only means that his experience has been small and his fate exceptionally happy. It is the "stage" method of Schröder, and even in his hands had a mortality of thirty per cent.; and all of us have tried it with most disastrous results. A uterine stump from which a myoma has been removed is unlike anything else in the human body known to me. It is as hard as cartilage and as brittle as cheese, so that a ligature will cut through it, or it is so completely infiltrated with serum that a tightened ligature will be quite loose in a few hours and the vessels will bleed even at the end of forty-eight hours.' Prejudice, and it is a compliment to use the term here, could hardly go further. If Mr. Treves's experience has been small, what could Mr. Tait's have been? Where has he published those disastrous results? His picture of cheesy flaps and bleeding vessels must be purely imaginary. His reference to Schröder is confident but unsupportable by evidence. Nobody has ever described exactly the final form of Schröder's operation; as far as we know it, it was a very rudimentary attempt at an intraperitoneal method. It was not a flap operation at all. It came nearer to what Zweifel has described, and his is a genuine 'stage' operation—a very different matter."

"Let us now consider for a moment an intermediate condition of the professional mind before taking some illustrations of the influence of criticism in its proper field of influence. We pride ourselves on our intellectual attitude toward new-fangled things, our medical skepticism, which as applied to other subjects gave rise to the mediaeval proverb *Tres medici, duo septicii*. No sentiment is more popular among us than the oft-quoted 'Nullius in verba magistri,' but the *verba magistri* are just as potent now in a more restricted province as among the schoolmen. (1) Take, for example, some episodes in the history of intra-uterine medication. We all remember the use of fuming nitric acid in the treatment of endometritis. In a book published in 1871 you may read 'its application causes very little, indeed in general, no pain; it produces but a superficial slough, and has a wonderful effect in bringing about a healthy condition of the mucous membrane lining the body and cervix uteri, etc.' 'Such is the treatment I nearly invariably adopt.' The author recommends the protection of the lower part of the canal and the os externum by means of the glass cannula, with as much confidence as if no such thing as capillarity had ever been heard of. We all remember how we employed this powerful chemical agent, and I at any rate could tell of some serious mischances, even though the patients all escaped with their lives. Still we continued under the influence of authority, even though the *magister* had discredited his judgment by describing the curette as 'an unscientific instrument and ill adapted to obtain the object in view.'

"The same author made another contribution to the subject of intra-uterine medication; he read a paper at a meeting of the British Medical Association in 1884. By that time he had nearly given up the use of nitric acid, only using it in three per cent. of his cases. He had adopted 'iodized phenol' on the recommendation of Dr. Battey, of Georgia, who considered it a cure for epithelioma of the cervix, and *a fortiori* of simpler forms of disease of the uterus. 'Iodized phenol' is merely iodine dissolved in carbolic acid. Why should it be more effective than carbolic acid, which it chiefly is? It is admitted that iodine

alone has little influence on the endometrium. This strong escharotic was injected into the uterine cavity without previous dilatation. Although no explanation was given of the abandonment of nitric acid, the new remedy was at once adopted, and I believe it is in general use. Yet it has many disadvantages as compared with other substances which may be employed for intra-uterine medication. There is no known agent which acts instantaneously in neutralizing the excess of fluid employed, as we have in the case of nitrate of silver, nitric acid, or chloride of zinc; and no attempt has ever been made to show that this serious drawback is made up for by any countervailing advantage. There has been absolutely no criticism applied to the subject. I do not say the treatment is bad; I believe it is not the best, and considering its drawbacks and the greater convenience and equal or better effect of other agents, I think 'iodized phenol' ought to be given up, as uncertain, uncontrollable, and therefore unsafe and unsatisfactory.

"How we sometimes allow ourselves to drift with every wind of 'doctrine' is well illustrated by the history of gynecology concerning *suture of the perineum*. The late Dr. Aveling, in a learned address, published in the first volume of the *British Gynecological Journal*, called attention to the fact that the writer of a book published in 1490 recommended the introduction of silk sutures in complete rupture of the perineum. The practice appears to have varied according to the fashion set by the masters up to the middle of last century, when Smellie published his work. Smellie's advice is definite and distinct, 'as soon as possible' to introduce deep sutures into the lacerated perineum. Toward the end of last century, however, the practice was falling into abeyance, and Burns, whose third edition was published in 1814, says that sutures ought to be resorted to if union can not be otherwise obtained. The practice of using sutures fell off again in this country, and only became general under German or Continental influence in the last quarter of a century. We still meet elderly practitioners who, in spite of all experience to the contrary, confidently state that lacerations of the perineum always unite by themselves. It is, on the contrary, the universal experience that they never completely heal without sutures; but with ordinary antiseptic precautions they always heal after suturing. And yet, in spite of this universal experience of men engaged in obstetric practice, we have a recent pronouncement in favor of the remote operation by a gynecological surgeon who can not have had many opportunities of observing how women suffer from complete rupture during the weeks after confinement when healing is 'left to Nature.'

"When Dr. Alexander, of Liverpool, brought before the notice of the profession an operation which he asserted, with a considerable amount of well-arranged and well-stated evidence, was efficacious in curing retroflexion of the uterus, he at once arrested the attention of all specialists in diseases of women. Whether it was a new thing or a revival did not matter to anybody but to Dr. Alexander. He should have solaced himself on that point with the reflection that it is impossible against the evidence always produced to disprove that original surgical work always has its birth in France. Many questions were naturally asked about the operation, and objections were raised which the author might have taken in a more philosophic fashion. However, no answer could be obtained except from evidence of the results of practice. 'To act is so easy; to think is so hard.' We all went into action, and left the reasoning to follow. Soon from all hands allegations as well as questions began to demand attention. It was alleged by men whose professional character would bear the strain that the operation was difficult to perform; and the author replied in vain that it depends upon the skill of the operator. It was alleged by men who obviously only sought to do their best for their patients that the results were not permanent, and this no doubt had its effects even against the author's assurance that his results were permanent. It was alleged in objection to the operation that it caused great pain and distress, that there was suppuration almost invariably which continued a long time, and that the patient must continue in the recumbent position for many weeks if a good result was to be obtained. These objections came from all parts of Europe and America, and those were by no means few or feeble which came from France, where the operation had been rather

warmly taken up. Then injudicious advocacy did its work. One operator assured the surgical profession that he could tickle out the ends of the round ligaments through a half-inch incision in any patient. This was an assertion simply calculated to anger the less gifted who had sometimes to dissect from the ring along the course of the ligaments in search of them, and not always successfully.

"I do not remember a proceeding introduced to the notice of the profession which received a fuller and fairer discussion and less unfriendly and biased criticism. After much action came the reflection which found expression both in word and practice, and now the operation is, rightly I believe, relegated to the class of justifiable proceedings which have rather a narrow field of usefulness, because of the reasonable objections to the operation under the most favorable conditions, and also because of the numerous alternatives to it.

"*The Prejudice of International Rivalry.*—The diligent reader of the special literature of France and Germany can hardly miss observing the barrier to universal acceptance of therapeutic measures which the bitter rivalry between the two countries for many years has raised.

"France was slow in accepting abdominal section for diseased ovaries, which came to it from Germany. The Germans were unwilling for long to accept the curette and the various appliances and measures for intra-uterine medication, which came originally from France.

"France was the home of abdominal operations for fibroid tumors, associated with the names of Kœberlé and Péan, and it was long before hysterectomy was taken up in Germany.

"Endless examples of less important differences could be mentioned resulting in delays, but not in permanent obstruction to the progress of gynecology.

"When both nations take up a new operation or therapeutic measure simultaneously and with ardor, surely there must be something in it which appeals to the common sense of all. Such an operation we have in the proceeding for the cure of retroflexion of the uterus with adhesions, which the Germans call *ventrofixation of the uterus* and the French gynecologists *hystéropexie*.

"The general adoption of this operation on the Continent naturally leads one to remark on our insular prejudice or wisdom, for so far it is almost literally true to say we will have nothing to do with it."

The American Chemical Society.—The following resolution was adopted by the council on June 7, 1893:

Resolved, That the general meeting of the American Chemical Society for the summer of 1893 be held in Chicago at such date as may be determined by the committee appointed by the society to co-operate with the World's Fair Auxiliary of the Columbian Exposition in arranging for an International Congress of Chemists.

In accordance with the terms of this resolution, the committee to co-operate with the World's Fair Auxiliary have determined that the fifth general meeting of the society shall be held during a period beginning August 21, 1893, in conjunction with the World's Congress of Chemists to be held under the auspices of the World's Fair Auxiliary and the American Chemical Society.

The committee desire to call to the attention of the members of the society and of American chemists generally the fact that in view of the large number of eminent chemists, home and foreign, who have already signified an intention to attend the World's Congress of Chemists, and the valuable character of the papers that will be presented, this meeting will doubtless be the most important gathering ever held by chemists in the United States. The time and place are therefore particularly auspicious, and the promise of a most successful and enjoyable occasion very great. The meetings will be open to all chemists in good standing, and in order that a programme of proceedings may be arranged in advance, it is earnestly requested that those who desire to offer papers will forward titles thereof as early as August 1st, to Professor William McMurtrie, 106 Wall Street, New York, care of the New York Tartar Company.

It is also the hope of the committee that in view of the important part taken by the American Chemical Society in calling the World's Congress of Chemists, the society will be represented by a large number of its members in this meeting. This is due to the foreign chemists who have accepted the invitations extended by the society.

In matters of transportation to, and quarters in, Chicago, members of the society will have all the advantages provided for those who will attend the World's Congress of Chemists. Those desiring information with this regard may obtain it by addressing Professor John H. Long, No. 2421 Dearborn Avenue, Chicago.

It is requested that as soon as possible after their arrival in Chicago, members will report at the Congress Headquarters in the Art Institute Building, Lake Front and Adams Street, and register their names and Chicago addresses so that they may receive without delay such notices and information as the committees may have to distribute at that time.

W. McMURTRIE,
C. F. CHANDLER,
A. B. PRESCOTT,
C. E. MUNROE,
H. W. WILEY,

[Signed.]

Committee to co-operate with
the World's Fair Auxiliary.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

GOUTY RETINITIS,

CHORIO-RETINITIS, AND NEURO-RETINITIS.*

By CHARLES STEDMAN BULL, M. D.,

SURGEON TO THE NEW YORK EYE INFIRMARY;

PROFESSOR OF OPHTHALMOLOGY IN THE UNIVERSITY OF THE CITY OF NEW YORK.

DURING the last few years my attention has been attracted by certain lesions occurring in the fundus in gouty patients, and the more I have studied these cases the greater has my interest in them grown. The pathological condition of the blood in gout does not always work in a way that readily attracts attention, and this is particularly true in regard to the eye. Most authors who refer to retinal complications occurring in the course of gout only mention a hæmorrhagic retinitis as being the most frequent retinal complication. Thus Nettleship says: "Hæmorrhagic retinitis is more commonly met with in gouty persons than in others. It may be unioocular or binocular. The children or descendants of gouty persons, without being themselves subject to gout, are liable in early life to this insidious form of eye disease" (*Diseases of the Eye*, fourth edition, p. 445).

Other authors refer to the subject in a still more casual or general way. Lychon speaks of intra-ocular hæmorrhages and neuro-retinitis as due to gout (*Thèse de Paris*, 1855).

F. Gauté says that there is a gouty retinitis which strongly resembles certain types of syphilitic retinitis, and which may or may not be accompanied by opacities of the vitreous, retinal hæmorrhages, migraine, and zona ophthalmica (*Thèse de Paris*, 1881).

Jonathan Hutchinson, in an article on Primary Intra-ocular Hæmorrhage, says that gouty persons are prone to hæmorrhages, venous obstruction, and irregularities in circulation, due to a too large arterial pressure and a relaxed condition of the vascular walls, and that vitreous opacities may in these cases be constantly present. According to him, there are four possible sources of these phenomena—viz., (1) changes in the blood; (2) increased arterial tension; (3) disease of the walls of the blood-vessels; (4) hypertrophy of the heart. He considers that both low tension and high tension are alike compatible with liability to rupture of the capillaries. A condition of loss of balance is easily induced, as the vessels are not well under vaso-motor control. The risks of rupture of the capillaries will be increased if there be hypertrophy of the heart or weakness of the walls of the blood-vessels (*Transactions of the Ophthalmological Society of the United Kingdom*, vol. i, p. 26).

Gowers speaks more positively in regard to retinal lesions in gout. He believes that spontaneous inflammation of nerve trunks and plexuses on one side only, and recurring after the age of thirty or forty, is seldom due to any other cause than gout. This always means primary perineuritis. Still, inflammation of the sheath of the optic nerve behind the eye is less common in ordinary gout than

inflammation of the retina. Gowers thinks the characteristics of these cases are the greater degree of disturbance of the vision than corresponds to the visible changes in the optic disc, the tendency to irregular defects in the field of vision, and the strong tendency to lesion of the other optic nerve by an independent symmetrical morbid process (*Medical Ophthalmoscopy*, third edition, 1890).

Galezowski says that in this disease the changes may begin in the retina and extend to the chorioid, and give rise to a retino-chorioiditis, characterized by an alteration in their vessels and deposits in and outside their walls. When the retina is alone involved there exist only vascular alterations. Atheroma (?) is frequent in the retinal vessels of gouty people, and usually attacks persons of advanced years—from seventy to seventy-five. The papilla is ordinarily not involved, but all around the macula and along the vessels are brilliant patches of exudation, generally along the arteries. The rest of the retina may remain intact. The lesion is generally unilateral. The subjective symptoms are the same as those of ordinary retinitis. Gouty retino-chorioiditis occupies the central zone of the fundus, is circumscribed posteriorly, the exudation is usually extensive, with hæmorrhages and sometimes pigmentary deposits. The disease develops slowly, usually involves both eyes, and never ends in total blindness, as the periphery of the retina is rarely affected (*Annali di ottalmologia*, xii, p. 199). We know that the retinal hæmorrhages met with in gouty persons may involve one or both eyes, and are of sudden onset. Small flame-shaped hæmorrhages are scattered all over the fundus, and if the extravasations are punctate they have striated margins. The disc may be hazy, but there is no such regular glistening-white deposit as is met with in so-called retinitis nephritica. The veins are usually engorged and tortuous and more or less indistinct by an effusion of blood into their sheaths. It seems hardly justifiable to separate this group of cases sharply from other forms of retinal hæmorrhage associated with renal disease and diabetes, since renal disease is so often a concomitant of gouty cases. The influence of the cardio-vascular system must be carefully considered in these patients. Hutchinson thinks that these hæmorrhages are due rather to venous obstruction, such as thrombosis of the retinal vein, than to arterial disease, as more explanatory of the suddenness of the attacks.

The effects of the poison of gout upon the vascular system are now generally recognized to be (1) a high blood pressure in the arteries; (2) hypertrophy of the left ventricle; (3) hard incompressible arteries undergoing atheromatous change. From these result either apoplexy by rupture of a blood-vessel, or aneurysm by dilatation of the vessel, or angina pectoris, or fatty degeneration of the heart.

Some years ago Dr. George Johnson found, in cases of chronic renal disease, a thickening of the muscular wall of small arteries and arterioles, which he attributed to increased contraction of the muscular coat, due to the abnormal qualities of the contained circulating blood. This led to a damming of the blood in the arteries, a rise of blood pressure, increased action of the heart in systole, and hyper-

* Read before the American Ophthalmological Society, July 19, 1893.

trophy of the left ventricle. Mahomed has since shown that high arterial tension is not a consequence but an antecedent of kidney disease. High blood pressure within the arteries is connected with spasm of the arterioles and hypertrophy of the thin muscular coat, and leads to hypertrophy of the left ventricle. The overdistention of the arteries causes a growth of connective tissue under the tunica interna of the arteries, which we call atheroma. Then follows hypertrophy, with failing heart and arteries.

There seems to be no doubt that a gouty optic neuritis is occasionally met with, for Hutchinson and others have reported cases, and it is probable that the perineurium is first affected, leading to thickening and compression of the bundles of nerve fibers, the adjacent lymph spaces being filled with an exudation from the blood-vessels.

There is also but little doubt that a gouty phlebitis of the central retinal vein and its branches is occasionally met with. This leads to a roughening of the surface of the internal lining, which favors the occurrence of thrombosis. In these cases, owing to the gouty poison, there is naturally hyperinosis and tendency of the blood to clot. Duckworth thinks that there is probably a determination of acid urates to the part, which acts as the directly exciting cause.

Most of our knowledge of this condition of the arteries has been gained from Thoma's investigations. He concluded that arterio-sclerosis is caused by some general disturbances of nutrition, which are partly the result of infection, intoxication, and other pathological changes of varying kinds, and partly the accompaniment of senile changes. These general disturbances of nutrition cause not only disease of the arteries, but also of the veins and capillaries. In the arteries the middle coat is thinned, and there is a loss of elasticity by a diminution of the resistance which the wall of the vessel opposes to the stretching of the blood pressure. The vessel is stretched in all directions, it widens, and its lengthening leads to tortuosity. The widening of the lumen is followed by a connective-tissue deposit in the intima, and this is followed in turn by a number of retrogressive changes, such as fatty degeneration, or calcareous degeneration, or hyaline degeneration. Similar changes occur in the veins. In the capillaries there is an increase in the porosity of the capillary wall and cedematous infiltration of the tissue. The important consequences of this so-called angio-sclerosis are varicose dilatation of the veins and aneurysms. In the beginning of the process there is a loss of elasticity of the vascular wall, shown in life by a soft, high pulse, and pulsation and tortuosity of the arteries, notably of the retina. At this stage there is the greatest danger of rupture of the arteries. Later the vessels, by reason of the deposit of connective tissue in the intima, become firm and rigid.

In endeavoring to explain the results of those vascular changes we must consider three factors: (1) The shortening of the median coat; (2) compensatory endarteritis; (3) atrophy of the muscular coat of the artery. A permanent slowing of the blood current in an artery is followed by a narrowing of its caliber, which is brought about in a regular way, on the one hand by a contraction of the tunica media, and on the other hand by a deposit of connective tis-

sue in the tunica intima. Any retardation of the blood current in the arteries and veins which is not completely and at once neutralized by a corresponding contraction of the media leads to a hyperæmia of the vasa vasorum and to a new growth of connective tissue in the intima, which narrows the lumen of the affected vessel, and consequently does away more or less completely with the normal rapidity of the current. With this there is associated later a similar formation in the media and adventitia. The first recognized departure from the normal condition of a vessel consists in the stretching of the media, which is the cause of the diffuse, primary arterio-sclerosis, characterized by a dilatation and tortuosity of the arteries, by an eccentric hypertrophy of the media, and by a diffuse, compensatory, fibrous thickening of the intima. All of these changes I have repeatedly seen develop in the retina of gouty patients while under treatment. We know from the investigations of Loring that arterio-sclerosis in the eye can be followed for years, and the gradual obliteration of the vessel traced. Evidences of its presence are the tortuosity of the arteries, pulsation in their blood current, opacities in their walls, often a diminished lumen, hyaline degeneration of some of the vessels on the papilla, aneurysm of the central artery, and varicose retinal veins. More rarely there occur complete obliteration of an artery and thickening of the walls of the veins with partial obliteration of their lumen. Changes like these in the central retinal artery and its branches are probably associated with similar changes in the ophthalmic artery and internal carotid.

More recently observers have begun to recognize corresponding changes in the veins, and to regard phlebo-sclerosis as a systemic disease analogous to diffuse arterio-sclerosis. Some years ago Sack described a condition which he called a chronic fibrous endophlebitis, and stated that it not infrequently appeared as a local lesion in consequence of local stasis in the venous system. Huchard, in 1889, and Spillmann, in 1890, both used the term phlebo-sclerosis to describe this process. According to the latter, phlebo-sclerosis in gouty persons may be both circumscribed and diffuse, the latter being met with in the small veins. The same pathological changes occur in the vasa vasorum, with an abnormal development of nuclei around the small capillaries. His investigations show that the venous lesions develop progressively and simultaneously with the arterio-sclerosis, without, however, ever ending in the profound alterations which change the arteries into rigid tubes (*Gaz. heb. de méd. et de chir.*, Oct. 11, 1890).

Pokrovsky has made still more extensive investigations upon thirty cases. Macroscopically the veins showed no marked changes, though they were sometimes found studded with circumscribed, irregular, elevated white patches, both soft and hard. He concluded from his investigations that chronic inflammation of the arteries, so-called arterio-sclerosis or chronic endarteritis deformans, is accompanied by analogous though less intense morbid changes in the veins. The most frequent process is a compensatory, diffuse, fibroid endophlebitis, analogous to Thoma's compensatory diffuse endarteritis. The endophlebitis commences

with the appearance in the intima of the veins of many young cells, which are subsequently transformed into fibrous connective tissue. The young cells are supplied mainly by proliferation of the elements of the intima. Besides this diffuse inflammation, there is a circumscribed nodose thickening of the venous walls, which is usually associated with retrogressive metamorphosis and is analogous to the nodose arterio-sclerosis. As regards the regressive changes, the most frequent is hyaline degeneration, met with in all the coats of the veins. Fatty degeneration rarely occurs. In cases of intense endophlebitis the media frequently undergoes an interstitial inflammatory process, with the formation of numerous blood-vessels, profuse cellular infiltration, and proliferation of interstitial connective tissue. The adventitia is usually affected in a slighter degree (*London Medical Record*, Aug. 20, 1890).

Raehlmann's paper on the changes in the retinal vessels in general angio-sclerosis also calls attention to the changes in the veins. In about half the cases examined there were corresponding changes in both arteries and veins of the retina. The veins were relatively widened, always had a whitish edge or margin, and in some cases appeared changed into white cords, and the blood column seemed entirely interrupted. In some places varicose dilatations were distinctly visible (*Zeitschr. für klin. Med.*, xvi, 1889). His investigations have shown that while extensive sclerosis of the vascular wall is usually accompanied by a hyaline degeneration of the tissue elements, showing like white lines along the blood column, it may sometimes be invisible with the ophthalmoscope. Raehlmann has noted the following changes in the retinal arteries: 1. Distortion and narrowing, sometimes so marked as to simulate the condition met with in atrophy of the optic nerve, but usually accompanied by a normal field for form and color and normal acuity of vision. 2. White lines along the arteries, due sometimes to cloudiness alone, and sometimes to that and thickening together. This consists microscopically in an alteration of the adventitia, by which the wall of the vessel is thickened, without narrowing of its lumen, and also in a hyaline degeneration of the arterial wall. 3. Local or patchy narrowing of the arteries, separated from each other by spaces of varying length in which the vessel has its normal caliber, the result of deposit in the vascular wall. In diffuse arterio-sclerosis the wall of the vessel has a more homogeneous, yellowish, glistening appearance, in which the structure elements are less distinguishable. In some places he has seen patches of arterio-sclerosis nodosa, occurring generally at the point of bifurcation. It is still an open question with Raehlmann how far these patchy proliferations of the intima—round, or fusiform, or irregular, as the case may be—have to do with the development of embolic and thrombotic processes. The vascular tension is probably increased in front of these narrowed spots, while it is diminished behind them. Complete closure of the lumen of an artery as a result of endarteritis nodosa occurs frequently. 4. Aneurysms of the central artery and its branches.

In the venous system of the retina Raehlmann found white lines along the veins, narrowing of their lumen in

local, circumscribed spots, and varicose dilatations also in circumscribed spots. He also met with pulsation in both arteries and veins, more frequently in the latter.

Goldzieher has described the same pathological conditions in the eyes of a patient whom he first examined clinically, and whose eyes he subsequently examined microscopically (*Contrib. f. prakt. Aug.*, 1889). In one eye of this patient, besides the changes in and about the blood-vessels, there was a circle of bright, glistening spots of varying size and shape, whitish-yellow in color and without pigmented border, symmetrically grouped around the macula, which was intact. These patches proved to be entirely in the retina. These spots of exudation he has seen in other cases, and they were accompanied by impaired vision and an irregular central scotoma. He says that in these cases the disc and periphery of the retina are usually normal, and that the course of the disease is chronic and painless, and to these points I wish to draw particular attention, as they correspond closely with the clinical and microscopical appearances of the cases on which this paper is based.

CASE I.—In June, 1889, I was consulted by a gentleman, aged seventy-two, at the request of his family physician. Four years previously he had consulted Dr. C. R. Agnew, who found signs of what he called chorio-retinitis in both eyes, most marked in the left eye. After a careful examination of his case, Dr. Agnew came to the conclusion that the trouble was due to gout, and recommended strict dietetic treatment. This was not carried out with any regularity by the patient, and the condition in the eyes grew slowly worse. The main difficulty had been an inability to read any small type. Some months before I saw him he first noticed that he could not see objects at a moderate distance as distinctly as usual, and, on testing each eye separately, he found that the main defect was in the left eye. This defect has slowly but steadily increased. I found, on examination, R. E. V. = $\frac{2}{3}$, with sph. + D. 1.50 = $\frac{2}{3}$. L. E. V. = $\frac{2}{3}$, unimproved, and decidedly better eccentrically. He could still read Jaeger 6, with sph. + D. 5.50 with the right eye. The tension was normal in both eyes. The media were perfectly clear in both eyes. A careful perimetric examination of the field of vision showed the presence of a small, irregular central scotoma for form and color in the right eye, and a very large scotoma in the left eye.

The ophthalmoscopic examination revealed a very interesting condition of the fundus. The outline of the discs was very much blurred, resembling the first stage of choked disc, but without the edematous swelling. In the left eye the arteries were much diminished in caliber, in several places the lumen being reduced to the merest thread, and requiring the closest examination to see the minute blood column that still existed. The white lines along the vessels, both arteries and veins, were very broad and distinct, and extended from the center of the papilla well out toward the periphery. In places the veins seemed dilated like a fusiform aneurysm, the vein on both sides of the dilatation being reduced in caliber. There were numerous patches of yellowish-white exudation in the retina of varying size and shape, mainly grouped about the region of the macula and disc, but with no systematic arrangement, and one patch of considerable size in the macula itself. There were no hæmorrhages in either eye. All these spots of exudation were in the inner layers of the retina. In the right eye the arterial and exudative changes were much less marked. The white lines along the arteries and veins extended for only a short distance

beyond the margin of the disc, and, though the lumen of both sets of vessels was in places diminished, there was no apparent disappearance of the column of blood and no fusiform or nodose dilatation of the vessels. The appearance of the optic disc, however, differed but little from that in the left eye. The action of the heart was strong, but somewhat irregular. There was a faint aortic and mitral murmur, and marked degeneration of the temporal and radial arteries. The urine had a specific gravity of 1.018, was slightly turbid, light amber in color, and contained neither albumin nor sugar. There were no casts, but it was loaded with uric-acid crystals, which were deposited on standing. His family physician confirmed the existence of gout, and agreed with me that the main treatment must be dietetic. After consultation with his family, it was decided to send him to Carlsbad, and he went, carrying a letter to Dr. Kraus, under whose care I placed him. He went through a carefully regulated course of treatment by the waters, with strict attention to his diet, by which his general health was very much improved, but there was no improvement in his vision. On his return I made a careful examination of the fundus of each eye, but could discover no appreciable change in the condition of the blood-vessels or the retina. While there was no demonstrable increase in the number or size of the patches of exudation, there was certainly no improvement. Peripheral vision was still fairly good, but he could not read at all with the left eye, and only with great difficulty with the right. This patient is still living, and the eyes show no perceptible change.

CASE II.—Early in March, 1890, I was consulted by a lady, aged forty-five years, whose vision had been failing for some months and who had never worn glasses. In November of the previous year she had suffered from an attack of *la grippe*, which assumed the form of asthma and bronchitis. She soon recovered from this attack, but suffered from a relapse, which was accompanied by severe neuralgia of the left side of the face and in the teeth on the left side, and by marked oedema of both lids. She had long suffered from gouty symptoms and was saturated with the disease, the chief symptoms being an obstinate general eczema and renal colic. She had one living child and had had four miscarriages. Syphilis could be absolutely excluded. She had been to Aix-les-Bains on several occasions and had always been greatly benefited by the waters. When I saw her there was marked oedema of the left upper lid and orbital tissue, but no other external evidence of trouble. There was compound hypermetropic astigmatism in both eyes, the right eye being the more defective, and with the refractive error corrected vision was $\frac{2}{3}$ — in each eye. She could read Jaeger 5 with sph. + D. 2.50 cyl. + D. 1.50, axis 180°, but could not read any smaller type. The cornea, anterior chamber, and iris were normal. There were peripheral opacities in both lenses, most marked downward and inward. There was an irregular central color scotoma in each eye, but no limitation of the field for form. The muscles were normal in their relations for all distances.

The fundus showed the following conditions: The optic discs were reddened and their outline was decidedly blurred as if smeared with a yellowish exudation. Both arteries and veins were reduced in the caliber of their lumen, and the white lines along the vessels were very broad and extended well toward the peripheral branches, particularly in the arteries. At the posterior pole were a series of patches of exudation of varying size and shape grouped irregularly around the macula, most of them being in the inner layers of the retina. There were no hemorrhages in the retina in either eye. The heart was quite feeble and irregular in action and there was a faint mitral regurgitant murmur. She had never suffered from an acute inflammatory attack of gout.

Repeated and very careful quantitative and qualitative analyses of the urine were made, the whole quantity passed in the twenty-four hours being examined, and this never exceeded fourteen or fifteen ounces. Its specific gravity varied between 1.020 and 1.028, its reaction was decidedly acid, and it was always dark-colored and turbid, and on standing cast a bulky precipitate. It always contained a small quantity of albumin, but no sugar or casts were ever found. The precipitate was made up almost entirely of uric and phosphatic acid crystals.

The patient was immediately placed upon the following dietary: For breakfast, weak black tea with a very little milk and no sugar, eggs scrambled or soft-boiled, a small portion of fresh fish, and occasionally an orange or some grapes. Dinner in the middle of the day: fish, poultry or game, underdone beef or mutton twice a week, fresh boiled green vegetables, toast or Graham bread, no butter; no starches, sweets, pastry, or ice-cream; no wine. A glass of lithia water with an effervescent lithia tablet at each meal. Under this dietary her general condition materially improved, and in the latter part of June she went to Carlsbad and placed herself under the care of Dr. Kraus. Under his carefully regulated treatment, both as to diet, baths, and drinking the spring waters, her improvement was very marked, not only in her general health, but also in her vision, so that when I saw her in October, 1890, her vision was $\frac{2}{3}$ — in the right eye, $\frac{2}{3}$ + in the left eye, and she could read Jaeger No. 1 with ease, with the refractive error corrected. The fundus, however, did not show much change. The white lines along the vessels were as distinct as ever and seemed to have extended still farther toward the periphery. There was no occlusion of the arterial lumen, however, at any spot. Some of the patches of exudation seemed to have shriveled or contracted in size, and there were apparently no new spots of exudation. The scotomata in the field were smaller in diameter.

The patient has rigidly maintained the dietary laid down for her and her general health is very satisfactory. An ophthalmoscopic examination is made at intervals of several months, but no material change has been noticed, so that it seems fair to assume that the disease process in the eyes has thus far been stayed.

CASE III.—In April, 1891, I was sent for to see a lady from the West who had suffered from inflammatory gout for many years, and was so crippled by the disease that she moved with great difficulty. She was sixty-eight years of age, and for some months had been conscious of a failure of vision in reading, and very recently for all objects at any distance. She had noticed that her eccentric vision was better than her central vision. The media were clear and the iris normal. R. E. V. = $\frac{2}{3}$, unimproved; L. E. V. = $\frac{2}{60}$, unimproved. There was a hypermetropia of one dioptré, and with sph. + D. 5 she could still read Jaeger No. 6 with the right eye. With the left eye she could read nothing smaller than Jaeger No. 14. The tension was normal. There was no limitation of the field for form in the right eye, but there was an ill-defined central scotoma for color. In the left eye there was an irregular scotoma both for form and color. The ophthalmoscopic examination showed in the right eye well-marked white lines along the arteries and veins, extending well beyond the margin of the disc, and one small patch of yellowish exudation in the retina just above the macula. In the left eye the symptoms were much more marked. The caliber of both veins and arteries was decidedly reduced, and the white lines along the vessels were very broad. There were numerous patches of exudation in the retina, round and oval, and both superficial and deep, grouped round the disc and macula, but there were no hemorrhages. In two of the smaller arterial branches the lumen seemed entirely obstructed. This

patient passed about thirty-two ounces of urine in the twenty-four hours, having a faint brown color and acid reaction, with a specific gravity of 1.022, and a rather copious deep-yellow sediment was deposited after standing a few hours. It contained no albumin, no sugar, and no casts, after repeated examination. The deposit consisted of uric-acid crystals and urates. She stated that her father and several other members of her family had suffered from a similar loss of vision after they had passed middle life, and that they were all gouty. This patient was under my constant care for more than a year, and is still seen at intervals. At no time have there ever been any symptoms, either objective or subjective, of renal disease.

After a careful study of this case, it seemed almost hopeless to expect any benefit from regulating the diet, owing to her age and the advanced stage of the general malady, and I contented myself with prescribing a general tonic regimen, including small doses of whisky and free lithium carbonate dissolved in lithia water. The changes in the blood-vessels and the retina slowly advanced, the white lines creeping toward the periphery and the patches of exudation increasing gradually in size and number. On two occasions small hemorrhages occurred on the disc margin of the right eye, apparently capillary in origin. In October, 1892, she had a slight cerebral hemorrhage, causing temporary impairment of speech and transient numbness in the right arm and leg, from which she entirely recovered, and there has been no recurrence of these symptoms. She is still very helpless and can only move about with great difficulty and with constant assistance. The heart's action is feeble, but fairly regular. The condition of the urine has somewhat improved. She passes about the same amount, but it has a lower specific gravity and there is less sedimentary deposit.

CASE IV.—In April, 1891, I saw a man, aged forty years, who gave the following history: He had always had somewhat imperfect vision in both eyes, owing to the scars of old corneal ulcers dating from childhood. He had been at various times a sailor, miner, ranchman, and barkeeper, and had always "lived high" when his means allowed it. For some months the vision in the left eye had grown much worse, so that he was only able to read the largest type. When I saw him I found the following conditions: There were faint opacities in the cornea of each eye, that in the right eye being central. R. E. V. = $\frac{3}{800}$, unimproved; L. E. V. = $\frac{2}{800}$ +, unimproved. With the exception of the cornea, the media were clear. He could read Jaeger 3 with the right eye with sph. + D. 1.50, but he could only read the heading of a newspaper with the left eye. There was no scotoma for form, but there was an irregular color scotoma in each eye. The ophthalmoscope showed in the right eye one small hemorrhage on the margin of the disc, but none in the left eye. In both eyes the white lines along the arteries were quite marked, particularly in the left eye, where they were also evident along the veins, and the lumen of both sets of vessels was narrowed, not only on the disc, but in the left eye for some distance beyond it. The outlines of the discs were blurred or smudged, and the discs themselves much reddened. There were no patches of exudation in the right eye, but in the left eye there were a number of irregular yellowish patches above and to the nasal side of the macula—all apparently in the inner layers of the retina—and one patch on the temporal margin of the disc. The heart was irregular in action, but otherwise apparently normal. The urine contained albumin, but no sugar or casts. There were about thirty ounces passed in twenty-four hours, which was acid, had a specific gravity of 1.026, and deposited a thick, brown precipitate, consisting mainly of uric acid and urates. The man denied syphilis, and had no trace of any specific lesion. There was a mild eczema on his hands and feet, and some chalky deposits in the middle and third fin-

gers of both hands. He had drunk all sorts of wines and liquors for many years, but he had never used tobacco because it nauseated him.

The man was very stout and his breathing was very short, and after any exertion he would have attacks of mild dyspnea. The patient's diet was at once regulated, and his daily supply of alcohol was reduced to the lowest amount of whisky. He was put on a general tonic treatment, with digitalis and small doses of potassium iodide, and he was advised to drink lithia water freely. Under this treatment his general condition began to improve, but its progress was slow, while the condition of the eyes grew steadily worse. The scotoma increased in size, the central vision deteriorated, the outlines of the discs became absolutely lost, though there was no swelling and no rupture of retinal blood-vessels. During the first month of treatment, subconjunctival ecchymosis occurred in both eyes, and this recurred several times during the following four months. The patches of exudation increased in number and size in the left eye, and new ones appeared in the right eye—all grouped around the macula or in the vicinity of the optic disc. The degeneration in the walls of the blood-vessels became more and more marked. The white lines broadened and extended farther toward the periphery, the deposit being more marked in the arteries than in the veins. The lumen of both arteries and veins became narrower, and toward the end there were several small arterial branches which were apparently entirely occluded. In both eyes there developed in several places fusiform aneurysmal dilations of the arteries, and on the distal side of these dilations the artery was always markedly reduced in caliber. The white lines were always broader and more marked at the points of bifurcation of the vessels.

In the latter part of September the patient developed pneumonia on the right side, and while ill with this pulmonary complication had a cerebral hemorrhage, which produced partial left hemiplegia, though his speech was but little affected. He did not rally from the pneumonia, and died on the sixth day, apparently from heart failure. I was fortunately enabled to make an autopsy, and removed the posterior halves of the eyes and optic nerves as far as the chiasm for examination. The autopsy showed very extensive degeneration of all the intracranial vessels, both arteries and veins. The circle of Willis was very stiff and rigid. The larger arteries retained some elasticity, but the smaller vessels were very stiff and in places had apparently lost all power of contractility. There was a small clot in the right anterior lobe, near the lower margin of the paracentral lobule, and another one in the right corpus striatum, near the supero-anterior region. The microscopical examination of the retina, optic nerve, and chorioid proved very interesting and absolutely confirmed the ophthalmoscopic diagnosis. All of the sections of the optic nerve, retina, and chorioid showed the signs of widespread arterio-sclerosis and phlebo-sclerosis. The adventitia and media were decidedly thickened, but in most of the sections the main increase was in the intima, which in many places was so marked as to almost obliterate the lumen. This was particularly noticeable in vessels at some distance from the margin of the disc. The proliferation in the adventitia was largely granular, while the thickening in the intima was mainly due to hyaline proliferation. Numerous fusiform aneurysmal dilations were found in the arteries, almost always at the point of origin of a branch, and on the distal side of these dilations the caliber of the vessels was markedly narrowed. No extravasations of blood were found, except one small one in the right eye near the disc, and previously noted with the ophthalmoscope. The nerve fibers on the papilla and in the retina were markedly varicose and separated by spaces filled with finely granular matter. The connective-tissue fibers were but little

altered. In the retina there was a decided thickening of the nerve-fiber layer, due to infiltration between the fibers of a mass of fine granules, aggregated in heaps, with occasional distinct cells provided with a cell wall and filled with the same granular contents. These aggregated masses of fine granules and cells extended through all the layers of the retina except the external layer. The capillaries on the optic disc were greatly dilated and accounted for the hyperemic condition seen with the ophthalmoscope, but between the capillaries were patches of fine granules similar to those in the retina. Sections of the optic nerves as far back as the chiasm showed the same changes in the walls of the blood-vessels as existed in the retina, but there were no special changes in the nerve fibers back of the eyeball and the nerves could be regarded as healthy.

In the chorioid the blood-vessels showed the same changes. The adventitia and intima of the arteries were thickened, the proliferation being more marked in the adventitia. The veins also showed the presence of phlebo-sclerosis. No very marked pigmentary changes were found, though there was some slight atrophy of the hexagonal cells. No exudation of any kind was found in the chorioid, except in the thickened coats of the blood-vessels.

CASE V.—In October, 1891, I saw a lady, aged sixty-five years, who for some months had noticed a gradually increasing blur before the right eye, and recently the same indistinctness of vision had appeared before the left eye. The media were perfectly clear, and the external aspect of the eyes was normal. R. E. V. = $\frac{2}{3}$ +; L. E. V. = $\frac{3}{8}$ —, unimproved. The ophthalmometer showed a hypermetropic astigmatism of one dioptre; axis, 90°. She could read Jaeger 5 with sph. +D. 3 with either eye. The tension was normal, and there was no scotoma or other limitation of the field. The ophthalmoscope showed an interesting picture. The optic discs were very red, but not swollen, and the outlines completely blotted out, though edema was scarcely perceptible. The appearances resembled those of papillitis without the swelling, and were more marked in the right eye. The vessels, both arteries and veins, showed the white lines well marked almost to the equatorial region of the eye, the deposit in the adventitia being, however, very irregular. In places there seemed to be a fusiform aneurysmal dilatation in both arteries and veins, the lumen of the vessel on the distal side of these swellings being nearly obliterated. This change was more marked in the arteries than in the veins. At the first examination no spots of exudation were discovered, but, as time passed and her vision grew worse, patches of exudation in the retina began to make their appearance around the macula and between the latter and the papilla.

This patient had always been gouty, and for some years had maintained more or less carefully an anti-gout dietary. The heart's action was feeble and irregular, but no organic lesion was made out. There were about twenty-six ounces of urine excreted in the twenty-four hours, which was dark-yellow in color, acid, and deposited a copious brown precipitate. There was a small amount of albumin, but there were no casts and no sugar. The precipitate consisted mainly of uric acid and the urates, with some phosphatic crystals. It was very interesting to note the gradual development of the patches of exudation in the retina, and the very slow extension of the disease of the vascular walls. The very marked development of this lesion in the retinal vessels, together with the condition of the urine and the gouty history of the patient, pointed to extensive disorganization of the vascular walls throughout the body, and to a probable rupture of some one of the cerebral vessels at no distant day. The vision slowly grew worse, so that eight months after my first examination she could no longer see to read even the largest type with either eye. Under dietetic management

and the free use of lithia, the condition of the urine improved very much, but the uric acid never entirely disappeared. Thirteen months after her first visit she was, without warning, attacked by all the symptoms of an "apoplexie foudroyante," and died in three hours without regaining consciousness.

I was permitted to make an autopsy and to remove the posterior halves of the eyes for microscopic examination. On taking off the skull-cap, the venous congestion of the dura mater and pia mater was very marked. All the arteries of the brain were found extensively diseased. In the substance of the left frontal lobe, about half way between the middle and inferior frontal convolutions, and dipping backward toward the fissure of Rolando, was a very extensive clot, as large as an olive, and in the paracental lobule, near the median line, was another extravasation, not so thick, but extending for nearly an inch in every direction, breaking down the brain substance completely. The middle and anterior cerebral arteries were in spots almost completely rigid, and the walls very thick and brittle. The same condition existed to a marked degree in all the arteries at the base of the brain. There was another small clot in the pons, near its under surface and far back, about as large as a split pea.

The optic chiasm, optic nerves, and posterior halves of the eyeballs were carefully removed and hardened for future examination. In making the sections from the nerves, my attention was directed principally to the condition of the blood-vessels, and in all of the sections, both of the nerve, retina, and chorioid, there were evidences of extensive arterio-sclerosis and phlebo-sclerosis, resembling closely the lesions described by Thoma. The adventitia and media were enormously thickened by hyaline and atheromatous infiltration, and the intima was in many places so increased in diameter as to project into and narrow the lumen of the vessel, particularly at the points of origin of small vessels. In two places in the retina there was found complete obliteration of one of the smaller arterial branches by the thickened intima, and one section showed a similar obliteration of the lumen of one of the smaller veins. The change in the coats of the blood-vessels was relatively as marked near the equatorial region of the retina as it was near the papilla. In most of the arteries the thickened adventitia was accompanied by a corresponding thickening of the intima, but in the veins this proportionate relation did not seem to hold good, the changes in the outer wall being here more marked.

As regards the nerve fibers on the disc and in the retina, they were here and there separated by oval spaces, which were sometimes empty and sometimes contained a mass of fine granules. There was in places slight varicosity of the fibers, and in the retina there was a decided thickening of the nerve-fiber layer, and to a less degree of the connective-tissue elements. Those sections which included patches of exudation showed marked thickening of the nerve-fiber layer, the thickening being due to a mass of granular bodies, some being distinctly provided with a cell wall and nucleus, while others seemed mere aggregations of granular matter. Within the limits of these patches of exudation the nerve fibers showed many varicosities. The same variety of granular exudation or degeneration was found in all the deeper layers, except that of the rods and cones, but to a much smaller extent. The exudation was largely confined to the nerve-fiber layer, and in several instances the spaces between the nerve-fibers seemed absolutely empty. There were no hemorrhages found in any of the sections. The region of the margin of the disc showed marked changes in the capillaries, which were generally dilated though their walls were thickened. This condition existed all over the disc and accounted for the extreme red appearance seen with the ophthalmoscope.

The blood-vessels of the chorioid showed similar lesions to those found in the retina. The adventitia and intima of the arteries were thickened, the adventitia showing the greater change. In a few sections the veins also showed a distinct thickening of their coats. The layer of hexagonal pigment cells showed patches of atrophy in some places. There were no patches of exudation found in any of the sections, and though spaces were found between the connective-tissue framework, which sometimes contained a few granular masses of small size, they did not differ materially from the ordinary chronic signs of senile degeneration of the chorioid. There was no conspicuous pigmentary change found in any of the sections.

Sections made from the optic nerve back of the eyeball showed the same marked changes in the central artery of the retina, mainly in the adventitia. There was little or no change in the aspect of the nerve fibers in this part of the optic nerve from that which is met with in a state of health.

In conclusion, the points to which I wish to draw attention are as follows:

1. The changes in the fundus are always bilateral, though rarely symmetrical in the two eyes.
2. The degeneration in the walls of the blood-vessels and in the retina cause marked impairment of central vision, little or no loss of peripheral vision, and never end in blindness.
3. The loss of central vision is always progressive up to a certain point, unless the cause of the lesion is recognized early in the onset and immediately and properly handled. Improvement in the vision after the disease is established can not be expected.
4. Hemorrhages into the retina are rare except in the early stage of the disease. Their absence later is probably due to the fact that the strength of the vascular walls is increased by the deposit, though their elasticity is diminished.
5. The most marked feature in the fundus is the development of arterio-sclerosis and phlebo-sclerosis. This is seen by the ophthalmoscope in the vessels of the retina, and the microscope shows that the degeneration exists as well in the vessels of the chorioid and optic nerve.
6. Another almost equally pathognomonic symptom is the peculiar yellowish granular exudation in the retina, located by the ophthalmoscope around the posterior pole of the eye and generally leaving the macula intact, and proved by the microscope to be mainly in the nerve-fiber layer, though found in all the layers except that of the rods and cones.
7. The changes in the optic-nerve fibers seem to be almost entirely intra-ocular, and can not be traced for any great distance back of the eyeball.

REASONS FOR THE REMOVAL OF ABDOMINAL TUMORS.

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(Concluded from page 143.)

ABDOMINAL tumors should be removed on account of the danger of axial rotation. The literature which takes note of a tumor rotating on its axis covers only about

thirty years. Rokitsansky, of Vienna, was among the first to call attention to the subject. The writer estimates from literature and observation that about eight per cent. of ovarian and parovarian tumors rotate on their axis. In 1891 Mr. Tait told the writer that he had, up to that date, sixty-two cases of rotated tumors. While a pupil of Mr. Tait for six months the writer saw four tumors rotated on their axes. Almost any abdominal or pelvic tumor may rotate on its axis. The writer has observed in an autopsy rotation of the cæcum and ileum on each other three quarters of a turn, but insufficient to obstruct the fecal current. Volvulus is only axial rotation of abdominal viscera. In the intestinal tract volvulus occurs sixty per cent. in the sigmoid flexure, thirty per cent. at the cæcum, and ten per cent. in the small intestine. Axial rotation of the digestive tract constitutes about four per cent. of all intestinal obstruction. It is no doubt due to a fatless elongated mesentery and previous constipation. As regards the causes of axial rotation of abdominal tumors, the writer is convinced that it is due to visceral rhythm. Any viscus which possesses an elongated attachment may rotate more or less on its axis. The uterus has been found rotated so as to demand operation. The kidney can, and does, rotate on its axis, resulting in partial or complete obstruction—the obstruction of its ureter causing hydronephrosis, and the obstruction of the renal vein due to twisting interferes with circulation and nourishment. It is possible for the spleen, in certain abnormal conditions, to rotate on its axis. Axial rotation of abdominal tumors may be partial or complete. It may be acute or chronic. An acute case generally acts in the following manner: A woman has an abdominal tumor. She has a sudden onset of pain; she will perhaps vomit. In twenty-four to forty-eight hours the abdomen will gradually enlarge. If it enlarges very extensively, the patient becomes pale and faint. The enlargement is the result of (a) the obstruction of the return venous flow from the tightness of the twist in the pedicle; (b) the dilatation of the veins in the tumor; and (c) the rupture of a vein in the tumor. The rigid-walled artery is difficult to occlude, and so keeps pumping its stream of blood into the tumor. The soft-walled, easily compressible vein is quickly occluded by the twist in the pedicle, and so all, or nearly all, the blood pumped in by the artery is retained in the tumor. The consequence is a sudden abdominal enlargement. Of course a woman may bleed to death in her own tumor, and such cases are on record, confirmed by autopsy. The tumor may twist so much on its pedicle that it may occlude both vein and artery. It may rotate so vigorously that it will be entirely twisted off or severed from its connections. In such cases the tumor acquires nourishment from the surrounding viscera. The trauma resulting from the axial rotation induces sufficient irritation to produce an exudate on the surface of the tumor. This exudate undergoes organization, acquiring blood-vessels, nerves, and lymphatics sufficient to nourish the tumor without its old pedicle. The writer saw with Mr. Tait one tumor sufficiently rotated on its pedicle to occlude the vein and artery, which was nourished by innumerable delicate, newly-organized processes of tissue spread over the circumference of

the tumor, and attaching itself to the adjacent viscera. In my own practice, while performing laparotomy, I have been surprised to find a dermoid ovarian tumor the size of a coconut entirely without a pedicle. It was wholly nourished by omental adhesions. The patient gave me a history of a severe attack four years previous from which pain and tenderness continuously clung to her. My first attention to axial rotation of tumors was in 1884 at Heidelberg in the clinic of Professor Czerny. One day a middle-aged lady suddenly appeared in the clinic who had come from her home in the country very sick. Professor Czerny put her on the table and examined her carefully. She had a high pulse and temperature and a dusky countenance. She appeared very ill. Professor Czerny said: "Gentlemen, I can not make the diagnosis. I will examine her again and perhaps operate to-morrow." The writer anxiously waited until the next day, when, sure enough, the woman was put to sleep on the operating-table. On opening the abdomen, a tumor of the size of a melon appeared in the wound. It was dark red in color, and Professor Czerny pronounced it gangrenous. It was easily removed and its pedicle ligated. That was a cyst rotated on its axis, and besides, it was not gangrenous, as such tumors rarely become gangrenous in the abdomen, and if washed well will show the color of normal tissue. Gangrene generally comes from tapping such cysts or the digestive tract may infect them. Cases have been frequently recorded where death followed tapping. Air entered the cyst and infection resulted. Axial rotation of abdominal and pelvic tumors may pursue a chronic or slow course. In such a tumor diagnosis is very difficult. The pain in such cases will be almost wholly carried by the sympathetic nerve, and the pain due to irritation of the sympathetic is generally a dull, heavy ache. It is a dragging pain. Cerebro-spinal nerves induce sharp, lancinating pain. So that slow axial rotation of abdominal tumors will be accompanied by dull, heavy, dragging pain. It may be noted that whenever there is more than one tumor in the abdomen the chances are very much increased for axial rotation. Pregnancy enhances axial rotation much more than the presence of a double tumor, because the uterus empties itself suddenly, and just after labor the tumor is apt to rotate. The writer has seen Mr. Tait operate on a woman six weeks after delivery for an abdominal tumor which had rotated about three times and a half on its pedicle. She was quite ill from delivery until after the operation, when she rapidly recovered. The strikingly easy manner in which operators speak of gangrenous tumors in the abdomen with recovery calls for objections. Recovery after gangrene or local death in the abdomen is extremely rare. What is usually called gangrene is simply dark tissue filled with venous blood. Now, if this dark tissue is removed and well washed the gangrenous idea will be displaced by the frequent appearance of the idea of normal white tissue. Air must in some way get to a tumor to admit of gangrene, and air enters by (a) tapping, (b) digestive tract, (c) genito-urinary tract. If a cyst has rotated sufficient to twist off its pedicle and become nourished by adhesions to adjacent viscera, it is more dangerous than the original tumor on account of its fixation and adhesions. It is generally more

liable to infection from the natural channels from its more extensive vascular connection. A tumor should be removed from its liability to axial rotation. A tumor rotated on its axis is dangerous to a patient from (a) hæmorrhage into the cyst; (b) gangrene; (c) because it may unduly enlarge from filling the veins of the tumor; (d) it may become fixed by adhesions and thus endanger the viscera; a fixed tumor is more dangerous than a movable one; (e) it may become infected and suppurate; (f) chronic axial rotation may exhaust a patient by pain; (g) it may result in trauma to viscera or perforation of viscera by pressure.

Abdominal tumors should be removed on account of the danger of rupture. It is a fact, which the writer has definitely observed, that tumors (ovarian and parovarian) will repeatedly rupture and fill in the living woman. In one case under my care the parovarian cysts repeatedly ruptured and filled during a year's personal observation. At the time of rupture the young woman of twenty-four would experience a sense of relief. The abdomen would become flattened and during the few succeeding days she would urinate frequently and profusely. Three years previously the writer had demonstrated that if a dog's peritoneal cavity was filled with water he would urinate profusely for two or three days. In removing ovarian tumors the writer has found old scars where such cysts had ruptured and refilled. The rupture may be due to violence or the continued pressure on some point of the tumor, thinning its walls so that leakage occurs. A rupture of non-infected cyst does no harm to a woman; but when a cyst containing infected material ruptures in the abdominal cavity death is almost inevitable. Hence such tumors which menace life should be removed on discovery. Cystic abdominal tumors are apt to rupture from increase of abdominal pressure, which, being continued long on single points of a cyst, either thin its walls so they will leak, or rupture by any violence. In one case the writer removed an ovarian tumor which gave a distinct history of rupture one year previous. A distinct scar was found about the size of a fifty-cent piece on the cyst to tell the story of rupture. Abdominal tumors may endanger life by rupturing into hollow viscera, as the gut, bladder, or vagina. From such rupture infection is almost sure to follow. The worst infection follows rupture in the digestive tract and second into the bladder. The writer has removed ovarian tumors with success which had ruptured into the digestive tract and almost destroyed the patient by chronic suppuration and exhaustion. About the worst of such tumors are ovarian dermoids which rupture into the sigmoid or rectum, for they make such dangerous adhesions. Two cysts may press so hard and long against each other that the walls in contact will fuse and the rupture will occur in the fused septum, which complicates by more adhesions and size of tumor.

The pressure occasioned by abdominal tumors demands their removal. A tumor pressing for a long time against a gut wall may thin it so that germs or their products may pass into the tumor and the tumor becomes infected; inflammation follows and may be accompanied by suppuration. But pressure must be observed to take place in two

directions—viz., toward the tumor and toward the viscus. The damage from pressure in abdominal tumors is threefold: (a) The effect of pressure on viscera; (b) the effect of pressure on the tumor; and (c) the effect of the pressure on the function of viscera, both remote and distant. This last idea was discussed under reflex action. It was shown how abdominal tumors induced hydronephrosis by partial or complete occlusion of the ureters. Tumor pressure will even induce interstitial and parenchymatous nephritis. Three fourths of women long possessing abdominal tumors have kidney disease. The tumor may press on some segment of the digestive tract and induce obstruction of the fecal current either mechanically or by reflex paralysis. The main point of pressure is on some fixed portion of the gut, the rectum, sigmoid, or colon. The canals, ureter, or gut curiously maintain their patency for a long time on account of their continual dilatation and contraction. The writer has seen these canals entirely surrounded by dense tissue of tumors, but a distinct tunnel still existed through the tumor considerably larger than the empty collapsed canal. Abdominal tumors, in a word, by pressure induce obstruction mechanically or by reflex irritation (spasm or paralysis), and should be removed. The continued pressure gives rise to (a) inflammation, by allowing infection to travel; (b) the inflammation may go on to supuration and end in perforation, internally or externally. The effect of pressure is very apparent on circulation—on vascularity. The pressure acts mainly on, or the effect is most evident on, the great venous plexuses. The hemorrhoidal from the inferior mesenteric suffers the most, as most of such patients have hemorrhoids. The effect of the pressure is also plain on the plexus pampiniformis, on the vaginal plexus, and on the venous bulb of the vulva. Areas of tissue become œdematous. The limbs swell. The pelvic organs suffer the main brunt from the mechanical pressure, while the distant organs suffer the reflex action the most evident. The mechanical pressure effect on circulation is (a) congestion, (b) œdema, (c) dilatation of veins (hemorrhoids). It must not be forgotten that since the sympathetic is mainly distributed to blood-vessels the reflexes from pressure on the vessels are effective and profound, local and general.

The writer has noted the effect of tumors on the color of the skin for a long time. It has long been recognized that the main source of pigmentation arises from the spleen. Jaschowitz started the view that the spleen was the source of pigmentation by dividing the sympathetic plexus going to the spleen on the spiral splenic artery. This experiment enhanced pigmentation. No doubt the liver is a second source of pigment from the fact that it buries red corpuscles, and pigmentation is very noticeable in malaria which profoundly affects the liver (and spleen also). But still the spleen may be credited with the main origin of pigmentation. The writer has noted about all colors of pigmentation (brown, black, and yellow) in such women, especially in a woman who has had a tumor a long time. The author saw a woman last month who had had a tumor for sixteen years, whose color was a deep brown and yellow, with patches of atrophied, glistening skin in-

terspersed. The tumor disturbs the rhythm of the spleen. The spleen is capable of a rhythm by (a) its elastic covering of peritonæum, (b) its elastic capsule, (c) its cells have the power of enlarging by receiving excessive blood. When the tumor irritates the splenic plexus it destroys its rhythm, and hence its nourishment. The nourishment being disturbed, its products—pigment—will be disturbed. Irritation induces the spleen to produce excess of pigment. The parts of the body most intensely pigmented are those exposed to the air. Yet the pigmentation is general. The simplest example of pigmentation is observed in pregnancy, which is generally localized to the genitals, breast, and linea alba.

But abdominal tumors create more definite and general pigmentation. The pigmentation is effected by the irritation passing to the abdominal brain, where it is reorganized and emitted to the spleen.

The irregular forces coming at irregular times to the spleen derange its rhythm, and consequently its nourishment. Pigmentation is the result of a silent process accomplished by reflex irritation and shows general derangement of the visceral economy. It is merely the surface tale of profound processes, indicating the removal of the offending invader. It is difficult to convince physicians that a laparotomy is really demanded to remove adhesions. Adhesive bands have blood-vessels, lymphatics, and nerves.

A tumor should be removed from its danger to create adhesions, but after they have formed they often require removal. They should be removed when they give rise to pain, when they distort and unbalance the viscera. They may occasion obstruction to any hollow viscus. They may strangle some viscus.

Even the lungs do not escape the evil influence of the presence of an abdominal tumor. The disturbance in the lung is mainly due to reflex irritation which disturbs the rhythm of the lungs.

Abdominal tumors should be removed from their liability to become infected.

The question may be asked, How does an abdominal tumor become infected or inflamed? Tumors frequently become infected, as is easily tested at the operation by observing adhesions—the result of infection.

The great highway by which abdominal tumors become infected is through the Fallopian tubes. Any laparotomist can easily see that inflammatory exudates arise at the fimbriated end of the tubes and from there spread. The infection travels by natural routes, especially along mucous channels. It particularly travels through the left Fallopian tube, as the writer has demonstrated that the lumen of the left tube is larger than that of the right.

The second great highway of infection of abdominal tumors is through the digestive tract. Germs or their products pass through the gut wall at pressure points and infect the tumor.

The third channel of infection is through the genito-urinary tract. A fourth is by tapping, allowing air to enter. The table presented with this article will show at a glance the reasons for removing abdominal tumors:

Heart.	<ol style="list-style-type: none"> 1. Irregular. 2. Hypertrophy. 3. Fatty degeneration.
Lungs.	<ol style="list-style-type: none"> 1. Disturbs rhythm—asthma. 2. Catarrh. <ul style="list-style-type: none"> (a) anæmic. (b) hyperæmic.
Liver.	<ol style="list-style-type: none"> 1. Disturbs rhythm. 2. Disturbs secretion. <ul style="list-style-type: none"> (a) Too much secretion. (b) Too little secretion. (c) Disproportionate secretion. 3. Pigmentation. 4. Nerve influence can check all secretion.
Kidney.	<ol style="list-style-type: none"> 1. Nerve impression can check all secretion. 2. Reflex irritation. <ul style="list-style-type: none"> (a) Too much secretion. (b) Too little secretion. (c) Disproportionate secretion. 3. Obstruction hydronephrosis. <ul style="list-style-type: none"> (a) Parenchymatous inflammation. (b) Intestinal inflammation. 4. Infection.
Digestive tract.	<ol style="list-style-type: none"> 1. Sensation. 2. Motion. 3. Secretion. <ul style="list-style-type: none"> (a) Too much secretion. (b) Too little secretion. (c) Disproportionate secretion. (d) Inflammation. 4. Pressure. <ul style="list-style-type: none"> (a) Suppuration. (b) Perforation. (c) Adhesions.
Spleen.	<ol style="list-style-type: none"> (a) Disturbs its rhythm. (b) Pigmentation.
Bladder.	<ol style="list-style-type: none"> Pressure. Perforation. Cystitis.
Inflammation.	<ol style="list-style-type: none"> 1. Through Falloppian tube. 2. Digestive tract. 3. Genito-urinary tract. 4. By tapping.
Circulation.	<ol style="list-style-type: none"> Congestion. Œdema. Hæmorrhoids.
Suppuration.	<ol style="list-style-type: none"> 1. Due to visceral rhythm. 2. Ten per cent. of ovarian and parovarian tumors rotate.
Axial rotation.	<ol style="list-style-type: none"> 3. Pregnancy and other tumors enhance axial rotation. 4. Diagnosed by sudden increase in size of abdomen.
Rupture.	<ol style="list-style-type: none"> 1. Sudden change in form of abdomen. 2. Diuresis. 3. Diarrhœa. 4. Cystitis.
Pressure.	<ol style="list-style-type: none"> 1. Inflammation. 2. Infection. 3. Perforation. 4. Hydronephrosis. 5. Obstruction. 6. Œdema.
Adhesions.	<ol style="list-style-type: none"> 1. Irritation. 2. Indigestion. 3. Malnutrition. 4. Anæmia. 5. Neurosis.

THE EFFICIENCY OF NATURE'S REMEDIAL MEASURES.*

By EDWARD VON DÖNHOF, M. A., M. D.

WHEN I accepted an invitation to present to this body some views entertained by myself, in common, I doubt not, with a certain proportion of its members, with regard to

this subject, many of the great difficulties in the way of doing so in a thoroughly intelligible and acceptable manner, especially as regards the younger contingent of our members, did not occur to me. But, as I have earnestly endeavored to blend the *suaviter in modo* with the *fortiter in re*, and avoided as much as possible the semblance of dogmatism, it is hoped that the chiefest obstacle to a patient hearing on their part has been obviated.

In order to properly begin a presentation of our subject matter, it seems fitting to recall a few elementary definitions. First, What is disease? To simplify the answer, we may divide the phenomena recognized as evidencing disease into two classes—first, those indicating merely functional and temporary disturbances of the body; and, second, those indicating organic lesions and suggesting more or less persistent derangement of the bodily functions, based upon pathological changes of tissue.

As affording a diametrical contrast to functional or organic diseased conditions, we have the condition recognized as "physiological equipoise"—i. e., a status of the physical economy in which every function is regularly performed, and in which there exists no discernible or presumable organic lesion.

The next inquiry demands a definition of the relative attitudes of the condition of physiological equipoise to the phenomena of functional or organic disease. Medical philosophy adheres to the proposition that the tendency of all pathological phenomena—functional or organic—is to spontaneous disappearance; or rather to a disappearance as the result of either the increased vicarious functional activity of various organs of the body, or the combined increased activity of all the bodily functions. Given a condition of physiological equipoise at the period of invasion of the body by a diseaseing influence, it is presumable that a healthful condition will supervene, unless, indeed, the invading element be of so overwhelming a character as to bring about such rapid, baneful modification of physical functions as to necessitate fatal organic changes, which absolutely forbid the re-establishment of the physiological activity of the parts so changed. In this event, either chronic diseased conditions result, or *exitus*.

If the condition of the body be such, because of its general lassitude, even without specially marked functional disturbances, a cause of disease attacking it would find, as it were, a suitable soil for accentuating its presence. In such a state of affairs the automatic natural powers are at a disadvantage; but, even in the face of this truth, palpable and oftentimes thoroughly successful efforts to throw off the disease, and even bring about in a given individual an extraordinary condition of general health, result from the spontaneous activity of such residual functional strength as remained to the individual at the period of attack, and which was successfully fostered by the discreet attendant.

It is my purpose to emphasize as much as I may that all therapeutic measures which are of real avail in the management of all manner of clinical emergencies are and must of necessity be derived from an accurate observation of the play of natural forces. Hence it is of pre-eminent importance that a knowledge, or as much of it as is attain-

* Delivered before the New York County Medical Association, June 19, 1893.

able, of physiology, and the demands of physiological conditions, shall be brought to bear on the management of disease and the reconstruction of distorted anatomical conditions, and that the only safe or scientific method of procedure is based upon these requisites; and, *per contra*, that empirical therapeutic adjuvants are only logically admissible when they are distinctly suggested by our knowledge of physiological processes, and are measurably chosen in harmony with them. It would be an endless task to myself, and tax your patience too severely, to make of this paper an array of specific details with reference to the management of the sick and sore. I prefer, therefore, to limit myself to a weighing process of the portent of the more modern literature bearing upon this point, since, despite its high source and ostensibly authentic character, it appears to me to propound doctrines which either quite ignore the *vis medicatrix nature*, or virtually affect to counterpoise it. Foremost in the ranks of these *littérateurs* are those who consider the destruction of a handful of microbes by means of a germicidal therapeutics as not only necessary but all-sufficient in protecting the victim of disease or injury from threatened or impending dissolution. If I succeed in pointing the fact that, despite their dogmatic assertions w.l.n.g.h to the contrary, Nature retains for herself the maximum of power of final direction of the results of pathological processes, I shall have quite fully attained my purpose, and with it directed the current of a half-hour's thought on your part into propitious channels.

"No profound acquaintance with the history of science is needed to produce the conviction that the advancement of natural knowledge has been effected by the successive or concurrent efforts of men whose minds are characterized by tendencies so opposite that they are forced into conflict with one another. The one intellect is imaginative and synthetic; its chief aim is to arrive at a broad and coherent conception of the relations of phenomena; the other is positive, critical, analytic, and sets the highest value upon the exact determination and statement of the phenomena themselves.

"If the man of the critical school takes the pithy aphorism '*Melius autem est naturam secare quam abstrahere*' for his motto, the champion of free speculation may retort with another from the same hand, '*Citius enim emergit falsitate quam e confusione*,' and each adduce abundant historical proof that his method has contributed as much as that of his rival to the progress of knowledge. Every science has been indebted to bold, nay, even to wild hypothesis for the power of ordering and grasping the endless details of natural fact which they confer from the moral stimulus which arises from the desire to confirm or confute them; and last, but not least, for the suggestion of paths of fruitful inquiry which, without them, would never have been followed."

"From the days of Columbus and Kepler to those of Oken, Lamarck, and Boucher de Perthes, Saul, who, seeking his father's asses, found a kingdom, is the prototype of many a renowned discoverer, who has lighted upon verities while following illusions which, had they deluded lesser men, might possibly have been considered more or less asinine."

"On the other hand, there is no branch of science which does not owe at least an equal obligation to those cool heads which are not to be seduced into acceptance of symmetrical formulæ and bold generalizations for solid truths because of their brilliancy and grandeur; to the men who can not overlook those exceptions and insignificant residual phenomena which, when tracked to their causes, are so often the death of brilliant hypotheses; to the men, finally, who, by demonstrating the limits to human knowledge which are set by the very conditions of thought, have warned mankind against fruitless efforts to overstep those limits."*

Yet truths, as such, must often be accepted without being perfectly understood as to their origin, and the concomitant circumstances that gave rise to, and finally resulted in, their establishment as accepted expressions of fixed laws of Nature. Thus the mind with facility grasps the attitude of the observer who framed the proverb which is synonymous with the subject of this discourse, as having noted in every animate form an inalienable tendency to conserve its own existence and prosperity, even at the expense of that of weaker organisms, and that the rejoinder of the lad who, having had pointed out to him by his observant tutor the quick eye and dexterous movement of the crane as it darted its head into the water and caught a passing fish, "That is well enough for the crane; but how about the fish?" is but a homely epitome of the law of existence. So it is in the endless cycle of life: the stronger preys upon the weaker to the end and purpose of the survival of the fittest, and a common progression of the residuum toward a higher plane.

It is not the province of either philosophy or science to do other than rigidly interpret what they may of natural law as they find it, and to adapt their teachings solely, and freed from hypothetical chimera, to that law, never forgetting that coercion here portends only the *exitus* of reason.

It is distinctly the high prerogative of the physician to interpret with peculiar sincerity natural law, but it would seem that, despite the basic philosophy of his vocation, he is led, by desires which outstrip the pace of indisputable acquisition of knowledge, to indulge an ambition which, however commendable in itself, having ostensibly for its foundation the hope of lessening human suffering, too often launches the votary into turbulent seas of imperfectly analyzed data and irrelevant, though never so beautiful, kaleidoscopic speculations.

Nowhere else, as in the field of medicine—within the realm of what should be strictly philosophic teaching, and which does and should plume itself most acceptably when its precepts are based upon axiomatic premises—do there exist such emphasized and withal such insurmountable (?) contradictions in terms. And it does not appear that these fallacies become less obstinate because of the capacity and willingness, on the part of some who do not accept *ex cathedra* the assertions of their authors, to demonstrate such errors; and, *per contra*, offer the safest, being truthful and in keeping with the truth, substitutes for them.

* Huxley.

The chief difficulty, I take it, in the way of a natural solution of the errors which almost overshadow the handful of established truths upon which scientific therapeutics is based is to be found in the more or less fantastical embellishments with which modern teachers and writers are wont to garniture their labors with their disciples. The hot race for distinction and priority, and all the rest of the tinsel and particolored plumage of proclaimed eminence and pre-eminence, makes even of the should-be staid man of science an exuberant enthusiast; and hence dogmatic asseveration of half-fledged theories, which have grown out of purely impractical speculation, with the slightest semblance of or no foundation at all in experience, fill volumes upon volumes, each of which purports to be the "latest, best, and most undeniable treatise of any yet extant" upon any one of the host of topics with which the wise (?) men of our era employ themselves. The cheapness of reputation is unfortunately greater than in the day of the Roman philosopher and statesman who wished only that his "enemy would write a book."

To write a book in this our day is almost synonymous with creating one's self an authority (?), provided, indeed, that the writer does not differ too widely from the particular fad of a preceding one on the same subject, or does so diametrically, and supports his tenets with such an interminable array of arguments, whose matter is made to fit the occasion, that he compels the plaudits of that element in the profession of medicine identical in mental caliber with the mass of groundlings whose voices rend the air in appreciation of the loudest-mouthed stump orator.

The modest reticence which so charms the layman into profound respect for its possessor, as he contemplates the true votary of the healing art, is born of an inner conscientiousness which, were its true cause—paucity of real knowledge in the possession of the object of his admiration—known to him, would, perhaps, change this admiration into scoffing unbelief.

This characterization of the layman is not unlike the relative attitude of the wonder-dazed embryo medicus, who stares open-mouthed at his wisdom-enshrined (?) modern professor of bacteriology as he isolates with a precision all his own this, that, or the other coccus, and so interposes his skillful dexterity between the life and death of his charge. He, too, might scoff with better reason when he grasps the fact that the dogmatic dicta of his master are but the would-be-realized vaporizings of a dream, and it is at this point that ever-watchful sophistry and, worse, charlatany stand guard at the elbow of the false prophet, and overshadow with impenetrable mysticism the would-be-cunning vision of his inquisitor.

There was a time not long past when the "prentice boy" about to enter the laboratory of his master surgeon received parchments proposing to teach him the "art and mystery" of his calling. The art was small; the mystery great, profound, and overwhelming. His art, if true, consisted in crudely demonstrating certain oft-met experiences more or less well understood by himself, and proportionately well taught his fledglings. The mysteries consisted in cloaking the not well understood phenomena of disease and

injuries with draughts and plasters relatively harmless when the patient's residual strength was sufficient to protect him from their influence, and all potent for evil when no such good fortune befriended him—he died, despite the good offices of the master.

Harvey, the true father of modern physiology, opened what seemed to be the flood-gate of medical philosophy when he discovered the mechanism and office of the little trip-hammer force-pump—the heart—the whole economy subservient to its movements as it pushes on the flow of the red current of life, that conveys in its myriad cells the food to foster it, and in its waters a detergent for its noxious enemies. Much as we are disposed to foster with our admiration this great philosopher, as the impetus of modern research, we may not leave off as a part of correct history, as we gather from the study of the papyrus the fact that the Egyptian priests probably knew, as did Harvey, the functions of the heart, as well as those of the vascular systems directly and indirectly connected with it. It would seem that, having attained a certain height in the course of their inductive reasoning, they, as does the modern investigator, reached a point when their reasoning no longer served the purpose of their vaulting ambition to be all wise, and was promptly overshadowed by plausible hypothesis and its equally plausible fruit—empiricism. It may not truthfully be gainsaid that by means of now better understood and applied laws of physics and chemistry—among the most powerful products of which stand the modern implements of exact information—the store of curious but, for the nonce, measurably practically inapplicable facts has not been largely increased; nor can it be disputed that from this store there have been deducted some laws clearly tributary to the prevention of human ailment. Observe these narrowly; observe them in their wonderful simplicity, and it would seem that the human intellect that could not grasp with ease their portent and significance and picture with facile exertion the direful result of their absence or inactivity must be puerile indeed. Study them, however, as they appear hidden in the maze of sophistical "pros and cons" of the modern bookwriter—I had almost said scriptomania—and it does not tax the imagination severely to evoke again the phantom of a century since which taught the "arts and mysteries" of its calling.

Truth is of unique beauty, sublime in its simplicity, hallowed by its rarity; destined solely for good, it is readily grasped by him who seeks after it and would become its faithful purveyor and make it to bless the needy and teach the unadvised.

The tenets of modern writers who defend with an exclusive dogmatism the theory that all disease is due to an invasion of the physical economy by microbic hordes is neither in the particular that they promulgate such doctrines, nor in the character of their defense of it, new with them. Among the earliest writers similar views were entertained and defended in a similar fashion. Perhaps if the Dutch spectacle-maker Jansen, who by accident discovered the wonderful powers of a globe of glass which had fallen from a rod of that substance which he was melting, had not been born and had not thus given the initial

momentum to the construction of much of the paraphernalia of the modern laboratory and its myriads of instruments for exact (!) investigation, no one would be answerable now for the ponderous tomes announcing the era-revolutionizing truths (!) promulgated by the modern bibliomaniac and omniscient microbiologist.

Historic lore credits an ancient philosopher who, near the close of a long life, had in his own words "inflicted the eagerly suffering voluntary student of his works" with many tomes of his written thoughts and observations with this confession to one whom he loved next himself, and who thus importuned him: "O beloved master, whence did you glean this marvelous store of wisdom?" "By," he answered, "hoping incessantly that mine eyes saw aright, and that at some day in the future some one nearer the gods than myself may succeed in proving to be true a little of that which I have written. For myself, I am as yet conscious only that I know nothing."

From the very nature of the surroundings it would be inadmissible to conjecture that Koch, Pasteur, *et al.* have written with similar empirical foundation the teachings that set the world agog; and yet, if but the very essence of truth contained in their enunciations were isolated and arranged side by side with a front as impenetrable as that of a Roman phalanx, the phalanx would dwindle into contemptible insignificance before the pompous magnitude of the hypothetic possibilities deduced from these little gleaming sparks of not yet perfectly pondered truths. Yet the world would not willingly part with these; nor could it if it would; for truth is indestructible; but let the world use it stripped of dangerous confusing and with all plausible conjectures, the benefits growing out of them in their naked simplicity will sufficiently compensate.

When Lister, more than a score of years since, directed the attention of the medical profession to the necessity (!) of inveighing therapeutically against certain general influences which he considered responsible for most of the ill-success attendant upon surgical exploits, he at the same time promulgated his teachings with such zest and enthusiasm and measured the results obtained by him under the new order of things with an eye so exclusively alert to all manner of wondrous possibilities as growing out of the correct technique of his prescribed method, that the whole surgical world wondered, and a large part of it more or less blindly followed his lead.

I must not be understood as wishing in the least to detract from Sir Joseph's merited laurels, but those who patiently engaged in the same line of studies as led him to his conclusions, and observed closely the tide and portent of events as time progressed and experience accumulated, witnessed retraction after retraction of their erstwhile vehemently asseverated allegations on the part of the antiseptic school until they were forced, first, to yield the distinguishing title—antiseptic—which they had chosen, and next to confess the impossibility of preventing the invasion of wounds or the blood by mischievous micro-organisms by those very means which had but lately been adjudged infallible. Finally, when other and stronger detergents were brought into use, the great danger to life growing out of

their application to wounded surfaces in such strength as had been found necessary to destroy the vitality of the organisms more feared, necessitated a refuge to the simplest and most natural measures known, to which at this moment they concede all desirable efficiency—namely, hot water and chloride of sodium. Meanwhile, as experience grew apace under the new (!) régime, the necessity of an accurate technique with regard to the manner of making surgical wounds, to proper drainage, and to the prevention of even the least hæmorrhage after their closure, by suture or otherwise, emphasized itself. Now, add to these well-established principles—all in imitation of the spontaneous phenomena of Nature, occurring under provident circumstances—the rules of practice requiring the use of clean hands and mechanical implements, and the thorough cleansing of the surface which is to be the site of the surgical wound, and we have the sum total of what can be proved to be the sole foundation of surgical success, so far as human precaution can contribute to it. This is asepsis—the condition which Nature demands and which a state of physiological equipoise provides in the individual who has been wisely selected and properly prepared for a surgical ordeal.

In conclusion, it is not intended to stigmatize those who from sincere conviction adhere to the new doctrines and literally and apparently unquestioningly carry out its prescriptions. But every one may rightly claim the prerogative of demanding indisputable proof for the faith which he is asked to adopt. As for myself, I repudiate a doctrine which, as I understand it, affects to ignore in the spirit the necessity of subscribing to the axiom that, especially in medicine, "true science is the handmaid of Nature," and can only become an adjuvant to her when it is tributary to the increase of *natural* conservative power by natural means, where such is lacking. And, further, I submit that however efficient as germicides certain chemical agencies may prove to be in the laboratory, the same impracticability attends them in their adaptation to clinical issues, and renders the effect of their use here either nil or mischievous, as is the case with respect to the effect of many of the so-called chemical preparations, presumably prepared with the nicest precision as supplemental ingesta, intended for the correction of certain qualitatively defective conditions of the blood and tissues.

I submit that unless the inherent residual *vis resistentie naturalis* vouchsafes recovery, no man has yet attained the means of compelling such an issue artificially.

VASO-MOTOR DISTURBANCE.

REPORT OF A CASE.*

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VASO-MOTOR disturbance as a separate disease has no right to any claim of place. It is but a symptom, a symp-

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tom of importance and, with our present limited knowledge, a symptom demanding separate discussion.

By a vaso-motor disturbance we mean a disturbance of circulation due to perversion of the normal nervous influence over the blood canals.

The following case of intermittent general vaso-motor disturbance, with some permanent conditions, may help us to understand the known physiology of vaso-motor control:

J. C. A., aged twenty-eight, a machinist, married, was born in Illinois. In Colorado ten months. Family history excellent. Patient has always enjoyed good health. When a child, had mumps and measles. When seven years of age he had malaria for a period of six months. When he was eight years of age he fell down a cellar-way and struck on his head. Does not know whether he was rendered unconscious. From that time for several years his head felt feverish to him every night, and it was a habit of his to put his head against the cool wall of his bedroom.

From fifteen to twenty-three years of age the patient suffered with "dizzy, blind headaches." He had the attacks as often as from two or three times a month to two or three times a year. The attacks would start with frontal pain and nausea, and then he would have dizziness and a peculiar blindness, in which objects would be blurred and apparently jumping. The attacks would last about two hours, and then gradually go away, but the patient would feel depressed for several days.

Twelve years ago the patient had a mild typhoid fever. He was sick in bed two or three weeks.

Patient has been a great smoker since his ninth year. He also used chewing tobacco. Until recently he was accustomed to smoke from five to eleven cigars a day.

He denies alcoholism and syphilis. He has been married three years and has three children. His second child, a girl two years of age, suffers with a papilloma of the larynx, for which tracheotomy has had to be made.

The present trouble began in the fall of 1890. He noticed that, on getting into a heated room, peculiar sensations were felt all over the body and head, described by the patient as needles pricking the skin, which needles seemed to get hotter and hotter until, in from three to ten minutes, he began to perspire, when the paresthesia began to disappear. He says he does not perspire much, or at all readily, at any time. Before this trouble commenced he perspired just as any one would, and much more easily and freely than he does now.

With this trouble, or possibly antedating it a short time, he noticed that he was gradually drinking more water, and that he was annoyed by an increased desire to make water.

From this time this symptom has continued constantly, being always worse in cold weather.

Since the onset the patient has experienced the peculiar sensations in the skin only in winter, and that only on getting heated. The sensation seemed to start in the back, and almost instantly seemed to go over the entire body. When it was at its height the patient could not endure it. He would have to quit his work and go into a cool place.

The first winter the trouble was not so great, for the patient could overcome it by keeping on at his work until he began to perspire, when the trouble ceased.

The next winter the trouble did not bother him very much. He was able to work, and only a few times during the winter did he experience any trouble, and then only slightly.

This past winter the sensations started in early and markedly. He was keeping a grocery store early in the autumn, but,

because of his skin sensations and because of his desire to urinate so frequently, he gave up his work, and for three months he has not been able to do anything. During very cold weather he has to urinate from twenty to thirty times in the twenty-four hours. The patient states that he makes a good quantity of water each time, and that he can never hold it long without discomfort. Once or twice it has come involuntarily. As a rule, he does not have to get up at night to urinate.

Though the patient has avoided heated places during this winter, still he has had the peculiar sensations in the skin fully a thousand times during the season.

During the winter the patient has taken ten or fifteen Turkish baths. In taking the first bath it was fully fifteen minutes before he began to perspire freely. During this time he suffered intensely and moaned with pain. Since then he has had some trouble, but much less than with the first bath.

He states that frequently during the winter he has had to get out of bed because of this peculiar sensation. As soon as he gets cold he can again retire.

With this array of symptoms, the patient has a decline of mental vigor, feels languid, and is melancholic most of the time.

On careful consideration of his case, I found that he slept well, that he had no cough, that the appetite was fair. His bowels move two or three times a day, the stools being of usual consistence. Patient states that he drinks a great deal, but that he is always thirsty. He has a dry, burning sensation under the sternum almost constantly. Physically, the patient thinks himself in good condition. Present weight, 150 pounds. Since the onset of the patient's present trouble his sexual vigor has been less than formerly.

For several years, and antedating the present trouble, the patient has had indigestion. He complains of a dull, sore, tender feeling in the epigastrium, which is sometimes increased by taking food.

At times he has a dull, uneasy feeling in the right testicle and in the small of the back over the left kidney. At this place he has some constant tenderness.

During the past year the patient has had seven or eight boils on the back of his neck, some of which did not open but simply dried up.

The physical examination revealed the following rather negative condition: Pulse, 90; temperature, 98° F. Tongue dry and coated with yellowish fur.

Examination of lungs and heart showed nothing abnormal. No stone in the bladder on sounding.

Amount of urine excreted April 27th, 28th, and 29th, one gallon a day.

Examination of urine February 18, 1893: Urine of a light amber color, faint odor; specific gravity, 1.016; pronounced acid reaction; no albumin to heat or nitric acid; no sugar to Trommer's or Fehling's test.

The examination being continued, revealed that both pupils respond to light and accommodation. Fields normal for white except slightly contracted above. Eyes carried in all directions normally. Taste and smell normal. Hearing normal.

The examination of the eyes by Dr. John M. Foster revealed—

"Remote vision, $\frac{5}{6}$ in both eyes. Slight amount of hyperopia in right eye. No heterophoria. Amplitude of accommodation good. Ophthalmoscope shows a horizontal elongation of the left optic disc, which is not abnormal. Otherwise both fundi normal."

The patient presents no ataxia in the arm, leg, or chest muscles. Muscular power of legs and arms perfect. Dynamometer, R., 130; L., 125. Patellar reflex normal; no ankle

clonus. Cremasteric, abdominal, and epigastric reflexes present, but slow. Only strong stimulation will bring them out. Plantar reflexes normal. Deep reflexes of arms normal.

Tactile, localization, pain, muscular, and posture senses perfect throughout the body.

On the outer surface of both legs and feet the patient recognizes cold at once, but heat of considerable degree is poorly recognized and sometimes called "cool."

Examination of urine March 25, 1893: Amount passed, twelve ounces and a half. Patient had passed urine of nearly the same amount thirty-five minutes before. Urine very pale; specific gravity, 1.000; faintly acid; no albumin; no sugar.

In this patient we have, then, an array of symptoms due to disturbed vaso-motor control. The feverish head of the patient when a boy, after his head injury, is the first evidence of his trouble. The peculiar paresthesia and the increased urinary discharge are the later evidences. To fully understand the case under consideration it is necessary for us to review in a concise manner the known physiology of the vaso-motor system. We know that the nervous system controls the heart's action and regulates its force and frequency of beat; and we know that each artery and arteriole has its caliber increased and diminished by the nervous system. It is upon the muscular wall of the arteries and arterioles that the nervous system exercises its influence. This muscular coat in the smallest arteries is proportionately larger than it is in the larger arteries, and it is over these vessels that the nervous system especially exerts its control.

If we remove the blood-vessels of a rabbit's ear from the influence of the central nervous system by dividing its sympathetic nerve, the blood-vessels in the part dilate and remain so. Now, if the peripheral end of the divided nerve be stimulated, the dilated arteries return to their natural size, or become more contracted than normal.

The usual condition of an artery, a point midway between extreme dilatation and extreme contraction, is termed the normal *tone* of an artery. This normal tone is maintained by the nervous system, and every artery has a nerve which maintains in that artery the normal tone.

These nerves are called vaso-motor nerves, and we find them running from the spinal cord and sympathetic ganglia, now in the cerebro-spinal nerves and now in the sympathetic. There are evidently two sets of fibers in these nerves—one set of fibers producing, when stimulated, dilatation of arterioles; another set, when stimulated, producing contraction. These fibers are now called, respectively, vaso-dilators and vaso-constrictors.

The center for these fibers is now ascertained to be in the gray matter in the interior of the medulla oblongata. On each side of the median line, in or just beneath the floor of the fourth ventricle, we find this center. It extends from the calamus scriptorius to the level of the sixth nerve nucleus. Each division governs the vascular tone of its own side of the body, and lesions in its region may produce unilateral vaso-motor symptoms. From this center the vaso-motor fibers pass down the interior of the spinal cord, and issue from it along with the anterior roots of the spinal nerves. They then traverse the various prævertebral ganglia of the sympathetic system, and, accompanied by

branches from these ganglia, pass to their destination. The center in the medulla can be excited to reflex action by strong irritation locally applied, as by improper blood passing through the medulla. When the center is excited to reflex action, a general constriction or dilatation of the vessels of the entire body ensues.

From various experiments it seems probable that the general center in the medulla is made up of a number of individual or special centers, each of which governs the circulation of a definite part or organ. The vascular tone of the thoracic and abdominal viscera is especially thought to be regulated by a series of such centers. Tiny destructive lesions in portions of the medullary vaso-motor center have caused hæmorrhages to occur in the lungs, pleuræ, stomach, intestines, and kidneys.

Then, the well-known experiment of puncturing the medulla, producing glycosuria or polyuria by causing local hyperæmias of the liver or kidneys, confirms this view.

The vaso-motor center in the medulla is not the only center in the body, for secondary or subordinate centers exist in the spinal cord and in the various regions of the body and on the blood-vessels themselves. Through these subordinate centers, under ordinary circumstances, vaso-motor changes take place. The higher vaso-motor center is chiefly called into play by an afferent sensory stimulus. According to that stimulus, it acts in two different ways—either to increase or to diminish in a part the normal arteriole tone.

If we have an increased arteriole tone, the blood-vessels become smaller, and angiospasm is said to exist. Now, the affected part, having less blood, becomes pale, and irritation no longer causes a vaso-motor reflex. If the *skin* is the seat of the spasm, it looks shrunken and anæmic. It feels cold and has the appearance of cutis asnerina. It tingles, and there are present anæsthesia and analgesia.

A temporary or permanent paralysis of the vessels is known as angioparalysis, and it is much more frequent than angiospasm. It depends upon paralysis of the vaso-constrictor nerves, or upon excitement of the vaso-dilators. Now the skin shows bright red or mottled. It is warm, and there is soon an increase of sweat. With the hyperæmia there is an increased sensitiveness to changes of temperature, a subjective sensation of heat, and hyperæsthesia and hyperalgesia occur.

Not only do sensory stimuli reflexly excite the medullary vaso-motor center, but impulses from the cerebrum may also affect it. This is seen in the angioparalysis from emotional disturbance.

With the vaso-motor center in the medulla there is supposed to exist a vaso-dilator center. Its existence has not been definitely proved, but it is strongly surmised. Its action is opposite to that of the vaso-constrictor center, and obviously it gives origin to nerves which cause dilatation of arterioles. The existence of vaso-dilator nerves is assumed from such experiments as dividing the chorda tympani nerve. From this there is no change in the blood-vessels of the submaxillary gland, but if the peripheral end of the nerve be stimulated there is dilatation of the blood-

vessels of the gland, so that the veins discharge bright florid blood, and on section spout blood like an artery.

The same array of phenomena occurs in a similar manner in many parts of the body, especially marked in erectile tissue.

Applying this knowledge to the case reported, let us see what relation each symptom bears to the known phenomena of vaso-motor disturbance.

Seeking for a cause in the case, I find but two available ones—one, the fall on the head when the patient was a child; the other, persistent smoking and chewing.

He states that he received his fall on the head when he was eight years of age, and for many years afterward suffered with feverish head at night. But as he began smoking at nine years of age, the smoking could have been the main factor after all.

Concerning the influence of tobacco or nicotine on the vaso-motor system, I may cite Ostroumoff, who says nicotine is a powerful excitant of the vaso-dilator nerves. When we remember that as a growing lad he smoked a great deal, one cause for his early trouble is apparently revealed. The injury to the head might have modified the functional activity of the ganglionic cells, just as occurs in spinal concussion, or it might have produced a minute hæmorrhage, laceration, or a local softening.

In the patient we have from our examination a permanent dilated condition of the renal blood-vessels, either of one or both kidneys, which dilatation allows the transudation of a large amount of pale urine. There is no inflammation of the kidneys, because no albumin or casts have ever been found in the urine.

This permanent dilatation is of only about four years' standing. It is probable that the use of tobacco is the cause of it all. No doubt he had had repeated attacks of polyuria, which escaped his observation.

At times the urine is slightly lessened in amount; apparently Nature making an effort to constrict the kidney vessels.

The persistent dilatation of these vessels depends upon two things—either stimulation of the vaso-motor dilators to the kidneys or lessened inhibition over their vaso-motor constrictors.

The stimulation of the vaso-dilator nerves might occur from a small tumor, a small blood clot, or some definite lesion involving that portion of the medulla controlling the kidney circulation. Such a lesion would affect the circulation of but one kidney, and that may be so in the case studied. The pain and soreness over the left kidney could be thus explained.

Then any irritation of the vaso-dilators along their course would produce this permanent dilatation. Such irritation might come from adhesions, small tumors, or localized inflammations; but as these nerves run with other nerves and as we have no symptoms of other nerve involvement, we can dismiss it.

A lessened inhibition over the vaso-constrictor nerves to the kidneys could be accounted for by lessened central functional control, or by a diminution in the transmission of this control to the kidneys. Of the latter we have nothing

to indicate, as the spinal cord bearing these nerves is normal.

With the permanent dilatation of the renal vessels, my patient has vaso-motor nerve storms. During cold weather, when his cutaneous capillary system is contracted, a slight stimulus of heat causes a reflex disturbance in the central vaso-motor center, and at once the vaso-dilators cause undue dilatation of all the superficial capillaries, resulting in a condition of angelioparalysis, causing intense and painful hyperæmia of the terminal nerve filaments, which only diminishes on the cause being removed or on relief being obtained by sweating.

I may state that this patient has never noticed any flushing or mottling of the skin during his vaso-motor paroxysms. His wife on several occasions—by no means all—has remarked that he looked pale. He says he thinks the paleness on these occasions was due to anger, as he was always seriously provoked at himself for giving up to the irritation. On one occasion when patient was undergoing my examination he had slight paresthesia, and I had an opportunity of noticing the color of the skin. It was at that time slightly reddened and hotter than normal.

The paresthesia of which he complains has been a distressing symptom, preventing patient from engaging in any work for three months during the past winter. Since the weather has become warm it has entirely disappeared.

Whether the lesion be organic or functional is the first question for us to consider. The persistent polyuria may be and frequently is due to gross lesions, but the fact that the renal discharge has lessened under treatment and that nerve storms, involving both sides of the body, complicate the case, causes me to regard the trouble as functional.

It may have originated and have been kept up by the free use of tobacco, the nicotine acting on the center causing dilatation of the renal vessels and functional instability of all of its cells.

I have tried to ascertain if smokers, as a rule, pass more urine than those who do not smoke, but my observations are as yet of little value.

Is the case one of diabetes insipidus? I think not. While it has in many essential particulars all the symptoms of diabetes insipidus, yet it has more, and symptoms which are exceptional in diabetes insipidus. Both the paresthesia and the furuncles which this patient has had are exceptional in diabetes insipidus, and his thirst has never been the thirst of a patient with true diabetes. The subsequent history of the case shows that it is not diabetes insipidus.

That history is as follows: I gave him in February nuxvomica and arsenic, and later one grain of ergotin three times a day. I saw him last on June 2d. His pulse was 72, his temperature 98° F.

He reported much improvement. For a week he had only had to make water from six to seven times a day. On June 1st he only passed three pints of urine in the twenty-four hours. On June 2d he passed only four pints of urine. Perspires freely. Has no paresthesia. Says he feels well. Has quit smoking, as ordered. The examination of the urine on June 2d showed a specific gravity of 1.022, acid reaction. No albumin, no sugar. No increase of uric acid. Sulphates and phosphates not increased.

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CERTIFIED CLINICAL THERMOMETERS.

In the *Report of the Secretary of the Observatory of Yale University* for 1892-'93 it is stated that the assistant in charge of the thermometric bureau is compelled to reject twenty-five, fifty, and even seventy-five per cent. of the clinical thermometers sent for certification, and that those rejected receive double the care and time required by the large majority of those for which certificates are accorded. It is believed that those that are sent for certification by manufacturers are carefully selected, and therefore far more reliable than the average of those sold without certificates.

The *Report* again invites attention to some points in the construction of registering clinical thermometers which are frequently overlooked by makers and users of these instruments. In those forms where the index is a short column of mercury—a third to half an inch long—separated from the rest of the mercury by a small bubble of air, the index is often lost by being thrown down into the bulb, the bubble escaping into the attenuated atmosphere of the tube, and when the index is restored the separating bubble is not likely to be of the same dimensions, and the temperature indications will not be the same as with the former bubble. The difference in the lengths of the tube occupied by the old and new bubbles will account approximately for the differences in the readings. The bubble should always be as small as is consistent with its function of separating the columns of mercury. The tube should extend so far beyond the maximum readings required that the compressed atmosphere at the top of the tube will not force the index back when the support of the mercury in the bulb is withdrawn by cooling.

In those forms where the "indestructible index" is maintained by a "trap" near the bulb, the various constructions of this trap may, at certain points, cause the index to drop irregularly when the mercury below the trap has contracted or may occasion a motion of the index by jumps; in fact, in most of the reliable instruments of this form it is merely a question of the number of jumps taken by the index in rising one degree—most of those in which the index rises perfectly smoothly and without jumps will justify the suspicion that the index will drop as soon as the mercury in the bulb contracts from the trap. While the index is rising freely the motion may appear continuous, but when the index is within a degree or two of coming to rest and rising slowly the jumps may usually be counted easily. The recent practice has been that, when these jumps average 0.1° or less, and the readings repeat themselves throughout, within the prescribed limit of accuracy, the usual

certificate is given; if the jumps average more than 0.1° and less than $\frac{1}{4}^\circ$, the readings repeating themselves as before, the certificate is modified by making the limit of accuracy " 0.2° " on the same certificate form; when the jumps average more than $\frac{1}{4}^\circ$ no certificate is given. The process of producing the trap leaves its walls in a somewhat unstable condition, so that moderate concussions may cause particles of glass to separate, which particles, acting as a plug, may temporarily sustain the index, which, when the plug is dislodged, may drop. The contraction here is so small, and the particles of glass are so fine, that it is not always easy to detect them. The same dropping of the index may be due to the varying effect of air in the trap. For the more certain and rapid counting of the jumps in this class of instruments the assistant has recently contrived an ingenious apparatus which he has now in practical use.

TOTAL REMOVAL OF THE PROSTATE.

ACCORDING to the *Medical Press and Circular* for June 28th, Dr. Dittel, of Vienna, has become an advocate of free operations on the prostate in suitable cases. An important case came before him at the University Hospital, in which the man was suffering from great loss of blood, apparently from the urinary bladder. A diagnosis of stone had been made, but the sound revealed no concretion. Pressure over the vesical region showed the presence of a large elastic swelling at the fundus of the bladder. Rectal examination showed a greatly enlarged prostate. The patient was a laborer, aged thirty-two years. He had had frequent and difficult micturition, from which the catheter had given relief at all times. The endoscope showed a large swelling to the right side of the neck of the bladder, in which there was a small depression whence the blood oozed slowly. The mucous surface had a smooth and nearly normal appearance. The conclusion was reached that vesical calculus did not exist, but that the prostate was the seat of some growth, probably a fibroma.

Dittel's previous experience with operations for the removal of diseased prostates had been unfavorable. He took the course of opening the bladder by the suprapubic operation. This enabled him to see that the loss of blood came from a large prominence at the neck of the bladder. With a scoop he brought away a part of the swollen gland, but the growth was so extensive posteriorly that he was compelled to attack it from below. A curved incision from the coccyx to the anus reached the mass, which lay to the right side of the rectum. The capsule of the prostate was opened and the whole of that organ removed. The recovery was prompt, with only a small escape of urine from the wound for a few days.

This is Dittel's first success out of four removals of the prostate. It was his wish in this case to proceed in some other way than by extirpation, but he was forced to pursue that course by the conditions confronting him after the first step in his attack upon the growth. He believes that this operation for the removal of the whole instead of a part of the gland can be employed only in those cases where the mass is so situated

in reference to the urethra that the latter need not be injured by the surgeon, and that where the tumor implicates the urethra extirpation must be regarded as impracticable. The removal of a part of the prostate should be preferred in these latter cases.

MINOR PARAGRAPHS.

THE ABUSE OF MEDICAL CHARITIES.

THE British Medical Association is making a determined effort to limit the abuse of medical charities in Great Britain. Its committee urges the establishment of a maximum wage-limit above which persons should not be admitted to gratuitous medical relief, and the appointment of an inquiry officer to investigate the circumstances of doubtful applicants for relief at dispensaries. It advocates the exhibition in a conspicuous place, in a hospital or dispensary, of a placard bearing the inscription: "This institution being established to relieve only those persons who are too poor to pay for suitable medical and surgical aid, notice is hereby given that on and after this date patients will be required to give information as to their means and circumstances, with a view to prevent the abuse of this charity by persons who are well able to pay."

AN ACADEMY OF MEDICINE FOR LONDON.

THE *Medical Week* states that on the 20th of July a number of representatives of the various medical societies of London met at the residence of Sir Andrew Clark, in order to discuss the feasibility of devising a scheme for the federation of the metropolitan medical societies, with a view to the establishment of an Academy of Medicine. As the result of the discussion a committee was appointed to consider the matter and to elaborate a scheme to be submitted to the societies for their criticism and approval. It is hoped that means may be found of preserving the autonomy of existing societies while furnishing a bond of union to further their common interests and to obtain before the public a position worthy of their scientific status.

THE INTERNATIONAL MEDICAL CONGRESS.

THE postponement of the congress until next year—predicted some weeks ago, then officially denied, and now authoritatively affirmed in the dispatch included in Dr. Jacobi's letter, published elsewhere in this issue—is an unfortunate circumstance, chiefly because of its coming so late, at a time when many have made their arrangements to visit Rome. As an offset, it is to be hoped that it will contribute to the attendance at the approaching Pan-American Medical Congress.

CHOLERA AT QUARANTINE.

THE affair of the arrival of an Italian steamer at Quarantine with one or more cholera cases on board seems, as we go to press, not calculated to warrant any apprehension that the disease will reach the city or any of the adjacent shores. However, it emphasizes the necessity of keeping a particularly sharp watch on arrivals from Italy.

A NEW CANADIAN JOURNAL.

WE have received the first number, for July, of the *Dominion Medical Monthly*, published in Toronto and edited by Dr. W. H. B. Atkins and Dr. W. B. Nesbitt, with the collaboration of Dr. A. B. Atherton, Dr. J. H. Burns, Dr. J. J. Cassidy, Dr.

J. Ferguson, and Dr. A. A. Macdonald. It presents a handsome appearance and contains excellent reading matter.

THE ANNALS OF OPHTHALMOLOGY AND OTOLGY.

WE congratulate the editor of the *Annals*, Dr. James P. Parker, of St. Louis, on the flourishing condition of that publication, as shown by the necessity of enlarging it. Its editorial staff includes several well-known ophthalmologists and otologists of various American cities, and its pages show their good work.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 8, 1893:

DISEASES.	Week ending Aug. 1.		Week ending Aug. 8.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	1	0	0
Typhoid fever.....	24	8	27	4
Scarlet fever.....	38	4	42	6
Cerebro-spinal meningitis...	9	10	10	7
Measles.....	179	11	161	9
Diphtheria.....	92	27	94	19
Small-pox.....	2	0	5	0

The American Electro-therapeutic Association will hold its third annual meeting in Chicago, on September 12th, 13th, and 14th. The preliminary programme is as follows: *Discussions.*—(1) What are the Possibilities of Electricity in the Treatment of Fibroid Growths. The discussion will be opened by Dr. J. H. Kellogg, of Battle Creek, Mich. The following among others have been asked to take part: Dr. Georges Apostoli, of Paris, Dr. Georges Gautier, of Paris, Dr. La Torre, of Rome, Dr. Augustin H. Goelet, of New York, Dr. A. Laphorn Smith, of Montreal, Dr. Franklin H. Martin, of Chicago, Dr. Margaret A. Cleaves, of New York, Dr. G. Betton Massey, of Philadelphia, Dr. George F. Hulbert, of St. Louis, and Dr. E. L. H. McGinnis, of New York. (2) The Influence of Frequency of Interruptions and Character of Induced Current Waves upon Physiological Effect. The discussion will be opened by Dr. W. J. Morton, of New York. The following among others have been asked to take part: Dr. d'Arsonval, of Paris, Professor Du Bois-Reymond, of Berlin, Mr. Newman Lawrence, of London, Dr. Larat, of Paris, Professor Edwin J. Houston, of Philadelphia, Dr. Apostoli, of Paris, M. G. Weisse, of Paris, Dr. W. J. Herdman, of Ann Arbor, Mich., Mr. J. J. Carty, of New York, Dr. J. H. Kellogg, of Battle Creek, Mich., Dr. A. H. Goelet, of New York, Dr. S. Weir Mitchell, of Philadelphia, Dr. A. D. Rockwell, of New York, Dr. Frederick Peterson, of New York, Dr. W. F. Hutchinson, of Providence, R. I., Dr. Georges Gautier, of Paris, and Dr. Franklin H. Martin, of Chicago. *Papers.*—The Nutritional Effects of Static Electricity, by Dr. W. J. Morton, of New York; Electro-musical Eccentricities, by Mr. Newman Lawrence, of London; The Graphic Study of Electrical Currents in Relation to Therapeutics, by Dr. J. H. Kellogg, of Battle Creek, Mich.; The Action of the Continuous Current within the Living Tissues as distinguished from the Local Polar Action, by Dr. W. J. Herdman, of Ann Arbor, Mich.; The Therapeutic Application and the Theory of Alternating Currents, and the Treatment of Fibroid Tumors with Electricity, by Dr. Georges Gautier, of Paris; Induction Coils, by Mr. A. E. Kenelly, of the Edison Laboratory; Electrolysis in Tumors of the Bladder, by Dr. Robert Newman, of New York; The Present Position of Electricity in the Treatment of Ectopic Gestation, by Dr. A. Brothers, of New York; Electro-therapeutics in Salpingitis, by Dr. W. B. Sprague, of Detroit; Report of a Case of Ascites cured by Galvanism, by Dr. Holford Walker, of Toronto; The Primary Action of the Galvanic Current on the Blood, by Dr. J. Mount Bleyer and Dr. M. M. Weil, of New York; The Conservation of Energy as a Successful Factor in Electro-therapy, by Dr. Horatio R. Bigelow, of Philadelphia; Synovitis treated by Cataphoresis, by Dr. F. H. Wallace, of Boston; The Use of Static

Electricity in the Treatment of Incipient Insanity, by Dr. W. F. Robinson, of Albany; Further Study of Electrical Anesthesia and Frequency of Induction Vibration, by Dr. W. F. Hutchinson, of Providence; The Absorption of Fibroid Tumors by Mild Electric Currents, by Dr. R. J. Nunn, of Savannah; Some Observations on the Fine Wire Coil, or Current or Tension, by Dr. H. E. Hayd, of Buffalo; The Treatment of Subinvolution by Electricity, by Dr. C. G. Cannaday, of Roanoke, Va.; The Successful Treatment by Electrolysis of Four Additional Cases of Oesophageal Stricture, by Dr. D. S. Campbell, of Detroit; The Treatment of Dysmenorrhoea by the Galvanic Current, by Dr. A. Laphorn Smith, of Montreal; Notes upon some Uses of Galvanism in Surgery, by Dr. W. B. D. Beaver, of Reading, Pa. Several other papers have been promised, but the titles have not yet been announced.

The Shelby County, Indiana, Medical Society.—At the next meeting, on Monday evening, the 14th inst., Dr. J. W. Rucker is to read a paper on Sanitation, and Dr. J. W. Green is to read one on Medical Ethics.

The Death of Dr. Samuel E. Mumford, of Princeton, Indiana, is reported as having taken place on Monday, the 31st ult. The deceased served as a medical officer during the War of the Rebellion, and had been president of the Indiana State Medical Society.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 30 to August 5, 1893:*

WOODHULL, ALFRED A., Major and Surgeon, is granted leave of absence for one month and fifteen days, on account of sickness, to take effect on or about August 15, 1893.

CARTER, EDWARD C., Captain and Assistant Surgeon, is granted leave of absence for two months, to take effect about August 10, 1893.

MCCAW, WALTER D., Captain and Assistant Surgeon, is relieved from duty at Camp Pilot Butte, Wyoming, and ordered to the Presidio of San Francisco, California, for duty.

Answers to Correspondents:

No. 411.—If there is no glycosuria, your diagnosis is probably correct. We would suggest the use of alkalis internally and bathing of the affected parts with water as hot as can be borne, followed by the application of a twenty-per-cent. solution of ichthyol.

Letters to the Editor.

POSTPONEMENT OF THE ELEVENTH INTERNATIONAL MEDICAL CONGRESS.

NEW YORK, August 6, 1893.

To the Editor of the New York Medical Journal:

SIR: The undersigned, chairman of the American National Committee of the Eleventh International Medical Congress, has received the following cablegram: "Dr. Jacobi, 110 West Thirty-fourth Street, New York: Genoa, August 4, 1893. Congress postponed to April, 1894. Letter follows. Maragliano." This official information, communicated by the secretary general of the congress, interrupts the preparations made for it. As many of our medical fellow-countrymen have been preparing to visit the congress, which was to be held on September 24th, I trust you will give the news herewith transmitted the greatest possible publicity.

A. JACOBI, M. D.

HAHNEMANN AND "HYDROPHOBIN."

NEW YORK, June 14, 1893.

To the Editor of the New York Medical Journal:

SIR: Dr. J. S. Leonhardt, in his entertaining reflections on Organic Juices in Therapeutics, published in the *Journal* of June 10th, makes the following statement:

"Hahnemann, in the early part of the present century, experimenting along the same isopathic curve, refined the crude therapeutics of the Greek and used 'hydrophobia' in the treatment of rabies."

I am tolerably familiar with the work and writings of the "sage of Coethen," but I never read or heard of his being addicted to such a practice as above imputed.

In the interest of historical accuracy in therapeutics, I ask Dr. Leonhardt to produce his authority for his statement.

GEORGE F. LAIDLAW, M. D.

Proceedings of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, held at Long Branch, N. J., on Tuesday, Wednesday, and Thursday, July 25, 26, and 27, 1893.

The President, Dr. HENRY M. LYMAN, of Chicago, in the Chair.

The President's Address.—After some reminiscent remarks relating to the study of nervous diseases, the president called attention to their predisposing causes, and said that we must not be content with the simple recognition of disease, but must be able to classify it ætiologically as well. He then spoke particularly of rheumatism affecting the nervous system. The marked forms chiefly affecting sensation were not so commonly recognized and were frequently ascribed to other causes. They were usually observed in elderly people of a nervous temperament and an arthritic diathesis, and differed from many other similar disorders of sensation in being transient, vagrant, and of brief duration. Among these ailments was a universal prickling over the surface of the skin, sometimes limited to certain points where the patient experienced a sudden sharp prick, like a flea bite. This might interfere with or delay sleep. Another disorder of cutaneous sensation often affected the scalp, and was occasioned by irritation of the superficial nerves of that region. The duration of the attack rarely exceeded a single day. Closely associated with these disorders were the various transient perversions of sensation that might be felt in the Eustachian tubes, in the pharynx, and about the fauces. Another of the symptoms of masked rheumatism was a peculiar and disagreeable feeling in the tongue. This sometimes assumed the severity of a genuine neuralgia, and manifested a greater degree of persistence when associated with obesity, diabetes, or gout than when connected with rheumatism alone. The oesophagus and fauces, and sometimes the muscles of the eyeballs, were similarly affected. These patients were also attacked by a paroxysmal cough associated with headache. The most distressing of all these forms of pain was gastralgia. The previous history and the concurrence of other rheumatic symptoms of a more stable character would, of course, add greatly to the certainty of the diagnosis.

Heterogeneous Personality.—Dr. SMITH BAKER, of Utica, N. Y., read a paper with this title. He defined heterogeneous personality as that condition in which the characteristics of ancestry are not blended into a permanent whole, and reported the case of a little girl who presented frequently recurrent attacks of functional perversions and distress which could not be satisfactorily explained except upon the inference that the dissimilar traits noticeable in her grandparents had not been blended in the personality of her mother, and so had proved to

be the ground-field of the grandchild's affection. But the question arose, Was such a view of the case professional or scientific good sense? We could never answer intelligently until the commoner facts of family life had been more minutely studied. Thus, such trite matters as dreams, somnambulism, the solving of problems unconsciously or subconsciously, the uprush of facts and arguments in the act of composition, and the play of genius, should be investigated. Inquiries in states of acute illness, and the study of moods and transformations of character, etc., all should receive more attention by physicians in order that causation in cases of functional derangement might be the more accurately conceived. In doing this, assistance might be found in many instances of so-called reflex disease. Heterogeneous personality should always be looked for in the neuropathic constitution. But more particularly was this of use in considering the problems presented by neurasthenia and the sexual perversions. Not so frequently, perhaps, was the trouble owing to the commonly assumed overwork, etc., as to the unceasing warfare within between the "lower" impulse and the "higher" determination. Students, professional men, and many others whose physical abnormalities or mental peculiarities revealed the sensitive, easily impressed nature were especially apt to be victims of the uncoalesced personality. Its bearing upon questions of marriage and parentage rendered it worthy of general attention.

Dr. LYONS, of New York, referred to the opposite sides of character as seen among the insane. An educated woman might be agreeable and lovable in her normal condition, but vicious when in the abnormal state. He knew of such a patient who would frequently apologize and do her utmost to resist the impulses to do wrong. He thought that such behavior might be due to abnormality in the development of the cerebral hemispheres or to some interference with the circulation.

Dr. PARSONS, of Sing Sing, N. Y., expressed the view that in persons with a tendency to evil thinking and acting such might be overcome by suitable environment. After a time the absence of restraint permitted of a continuance or permanency of the abnormal condition. This would probably account for many of these cases.

Dr. HINSDALE, of Philadelphia, spoke of two authenticated cases of double consciousness. He thought that the medico-legal features of such cases, as well as those of changes in personality, were of special interest and should be reported and carefully analyzed.

Dr. SEGUIN, of New York, believed that atavism was the more rational explanation. Blending of the characteristics of ancestors occurred normally. It was not right to confound double consciousness of an epileptic nature with conflicts of character and personality.

Dr. J. J. PUTNAM, of Boston, said that the treatment rested upon the systematic development of character. Hypnotism had taught us much in regard to this condition, and brought out certain phases of character in a striking manner. He recommended the development of the inhibitory powers.

Dr. F. X. DERCUM, of Philadelphia, thought the case reported by Dr. Baker recalled the fact that there was lowered vitality at certain epochs in women. Relationship between states of health might account for the peculiar mental variations.

Dr. BAKER referred to the various definitions of personality as being not sufficiently inclusive of the facts to be of accurate use. He urged the importance of the study of the subject, especially in its bearing not only upon the causation of actual disease, but in its relation to all our educational ideas and practices as found to-day in our school system. In this way we might find means of obviating detrimental traits, and also of making dominant those more desirable and healthful.

Detention Hospitals for the Insane.—Dr. MATTHEW D. FIELD, of New York, read this paper. After speaking of the wrongs inflicted upon the insane by committing them to county jails and prisons, there to mingle with tramps while awaiting the appointing of physicians to pronounce upon their mental condition, he gave a description of the Reception Pavilion for the Insane at Bellevue Hospital, and the methods of examination and commitment by the city examiners. He declared the pavilion to be in every respect a hospital, with resident physicians and competent trained attendants. Though a plain and inexpensive building, it served its purpose very well. He advocated the establishment of similar hospitals for the reception of those suspected of lunacy in all large cities. He said that an ideal institution for this purpose would be a hospital constructed on the pavilion plan for the reception of the insane, inebriate, and neurotic, with a small amphitheatre and sufficient wards for proper classification and detention for a reasonable time. A competent visiting resident and examining staff of medical officers should be chosen and clinical instruction regularly given. Such a hospital would secure prompt, humane, and scientific treatment. The opportunity for longer observation and securing histories and examinations would result in more complete and accurate certification. There being no need for hasty transfer to other institutions, the feeble, sick, and certain selected patients could be detained for treatment, and clinical instruction would be easily accessible to the entire medical profession.

Dr. KNAPP, of Boston, said there were no detention hospitals in Boston, and they had felt no urgent need for them under existing Massachusetts laws. A few emergency cases requiring immediate restraint were admitted to the general hospitals. Otherwise they could be taken at once to the nearest asylum on emergency certificates. These consisted of two separate certificates. A bond must be given by the superintendent or one of the physicians to the effect that the patient was to be formally committed or released within five days. This system had proved eminently satisfactory and had rarely been abused.

Dr. MILLS, of Philadelphia, stated that the method described by Dr. Field was in vogue at the Philadelphia Hospital. There was a detention ward for isolating cases of insanity. Two physicians were assigned to examine these patients before commitment. This ward had also been used for several years for clinical instruction.

Dr. PRESTON, of Baltimore, remarked that the lunacy laws of Maryland were inadequate. They were endeavoring to establish a detention ward. At present insane patients were kept at police stations, as no general hospital was prepared to receive them. Their method of dealing with such cases was entirely unsatisfactory.

Dr. PARSONS agreed with Dr. Field, and believed that such a ward would serve to diminish the number of improper cases sent to asylums.

Dr. BAKER thought that a detention ward would prove extremely valuable for suspected cases of insanity as found in private practice.

The PRESIDENT said that in Chicago they had such a ward in the City Hospital where these cases were detained until transferred. Their commitment laws were now quite satisfactory.

The Temperature in General Paralysis of the Insane.—

Dr. FREDERICK PETERSON, of New York, read a paper with this title. He first reviewed the literature of the subject, calling attention to the statements of various authorities that there were in general paresis extraordinary daily variations of temperature, that the average bodily temperatures were subnormal or hyperpyretic, and that axillary asymmetry of temperature

was particularly frequent. With the assistance of Dr. Langdon, the temperature in twenty-five cases from the wards of the Hudson River State Hospital for the Insane had been carefully studied. Observations had been made every two hours for a week in each case, and in ten cases the temperature had been taken in the two axillæ simultaneously every two to four hours for a week.

He had reached the following conclusions:

1. As regarded the average bodily temperature, it corresponded with physiological norms. The statements in literature as to hyperpyretic or subnormal averages could not be sustained.

2. The diurnal oscillations of temperature in paretics also corresponded to physiological norms. Observations found in literature as to frequent extraordinary daily variations in such cases seemed to be absolutely erroneous.

3. Asymmetrical axillary differences were so small that they could not be considered as abnormal, and certainly not of any diagnostic significance.

4. When unusual variations of temperature occurred in general paretics, their cause must be sought for in conditions not related to the pathological phenomena of paralytic dementia, but depending upon other thermogenic features unrecognized by the physician or "masked" by the mental state of the patient. Thus in a case of his series an increasing hyperpyrexia had been noted during the second week's observations, but the pneumonia causing it had been "masked" until the fifth or sixth day, and the patient had died on the sixth day. In another case, where the highest single daily oscillation had been 3.4°, and the average daily oscillations for the week 2.2° F., the patient had had bedsores on the sacrum and heels and undoubtedly been somewhat septicæmic. That the temperature might vary in the paralytic seizures of these cases was not gained, no observations having been taken in such conditions.

Dr. GRAY, of New York, said that a large number of different pathological conditions were often included under the name of general paresis. He thought a number represented the terminal stages of intracranial syphilis.

Dr. ISAAC OTT, of Easton, Pa., did not believe that the heat centers could be located from the symptoms of general paresis.

Dr. PUTNAM had occasionally noted oscillations of temperature in paretics.

Dr. B. SACHS, of New York, agreed with Dr. Gray as to the question of diagnosis. The results of his observations coincided with those of Dr. Peterson. He had recorded the rectal temperature. Elevations were often due to complications from gastric disturbances. The temperature was usually a little higher than in those who had no organic disease. He inquired if clinical studies of the heat centers had ever been made.

Dr. OTT said that he knew of only two cases of pistol-shot injury to the brain associated with immediate rise of temperature.

Dr. PARSONS remarked that in one of his cases the temperature had always been normal.

Dr. MILLS regarded the manifestations of general paresis as so diverse in character that we could thus account for the different experience of various observers.

The Anatomical Changes in the Spinal Cord in an Old Case of Infantile Paralysis.—Dr. JOSEPH COLLINS, of New York, presented numerous sections of the spinal cord and reported the history of a case of infantile paralysis of long standing.

Progressive Muscular Atrophy.—Dr. G. M. HAMMOND, of New York, exhibited microscopical specimens and gave the pathological reports of two cases of progressive muscular atrophy, and referred to the fact that considerable confusion was

occasioned by the misapplication of the term "peroneal type" to a disease totally dissimilar to the one under consideration.

The first patient was a woman, aged forty-six years, without history of gout, rheumatism, or syphilis. In the fall of 1889 she stumbled over a chair, bruising the right shin slightly, and a few days afterward she was unable to walk as well as before. Soon after there was marked weakness of the flexors of the foot and the extensors of the toes. By October, 1890, there was complete paralysis of the entire right leg, with reaction of degeneration, loss of power and electrical contractility of the anterior tibial muscles of the left leg, and atrophy and loss of power of the thenar and hypothenar muscles of the right hand. Gradually but rapidly the other extremities became involved, and ultimately the abdominal and intercostal muscles were affected. She died suddenly from either cardiac or respiratory paralysis. The sections of the cord showed sclerosis of the pyramidal tracts, atrophy of cells in the anterior horns, and degeneration of Gowers's column throughout its entire extent. The conclusions to be drawn from the clinico-pathological study of this case would be that the muscles of the hand were supplied by the mesial group and the muscles of the forearm from the anterior group of cells in the anterior horn.

In the second case, seen in 1882, the disease only affected the muscles of the left thumb. The author had had the opportunity to watch the case to its termination, in 1893. It ran the usual course and was in every way typical. At the time of death all of the muscles from the level of the armpits upward, except the facial muscles, were atrophied, as well as those of the upper extremities. The woman became maniacal and finally died from exhaustion. The cord and medulla were examined, and the changes were identical with those described in the preceding case.

He concluded that these cases demonstrated that progressive muscular atrophy was due to a degeneration of the cells in the anterior gray masses and the antero-lateral white columns; also that it was superfluous to divide progressive muscular atrophy into different types because the disease did not invariably begin in the same group of muscles.

The last two papers were discussed together.

Dr. MILLS agreed with Dr. Collins as to the arrangement of cells presiding over the flexors and extensors. He suggested examination of the nerve roots at the extreme limit of the lesions.

Dr. SACHS thought such a careful pathological study would ultimately lead to better results than the usual clinical methods. That the Aran-Duchenne type was of spinal origin there could be no doubt, but he was not certain that Dr. Hammond's case represented the peroneal form of progressive muscular atrophy as described by Charcot, Tooth, Hoffman, and himself. If the case had been such, the findings in the spinal cord would have been of great importance. He was not yet certain whether the peroneal form represented a spinal disease or a peripheral affection.

Dr. PUTNAM had had a case in an adult where there had been rapid destruction of gray matter throughout the cord. Despite the violence of the process, portions of the anterior and lateral cell groups were preserved.

Dr. PRESTON inquired as to alterations in the blood-vessels. He believed this was the primary pathological change. He also asked if Dr. Collins had examined cross sections of the mixed nerves.

Dr. GRAY thought it very difficult to make a positive clinical diagnosis between the central and peripheral portions of the lesion. This was often illustrated in the class of cases reported by Dr. Hammond.

Dr. COLLINS said that his investigations extended over greater ground than his paper suggested. There was diminution in the

size of the vessels, but no evidence of atheroma. The mixed nerves had not been examined. He thought the hæmatoxylin stain useless for a study of the cellular structure.

Dr. HAMMOND concluded that the peroneal type was simply progressive muscular atrophy beginning in the peroneal muscles.

Optic Neuritis, Blindness, Deafness, and the Knee-jerk in Cerebellar Disease.—Dr. DERGUM read a paper with this title. He thought many of the symptoms of cerebellar disease were both inconstant and variable. They were difficult of explanation and frequently impossible to correlate. He desired to call attention more especially to the optic neuritis, the blindness, the deafness, and the modifications of the knee-jerks. He related the history of seven cases in which these symptoms had been present. It was a matter of common experience that very high grades of neuritis might exist without marked impairment of vision. It would seem, therefore, that the added symptom of blindness gave a special significance to the optic neuritis found in these cases. It would appear that for some reason, if there was optic neuritis at all in cerebellar disease, it was apt to be intense in character and, further, was likely to be associated sooner or later with total blindness.

The proximity of the quadrigeminal bodies had naturally suggested itself as in some way explaining this blindness. The ataxia and titubation present in these cases referred us at once to disease of the vermiform process. A consideration of anatomy, as well as the autopsy in one of his cases, would show that if a growth was situated in the vermiform process, especially anteriorly, and continued to enlarge, it would sooner or later press upon the superior cerebellar peduncles and very probably upon the quadrigeminal bodies themselves. When we recalled the relation of the fibers of the optic tract to the primary optic centers, we could readily understand how, if pressure or irritation occurred at this point, a neuritis should be a consequence. Further, the irritation being direct, we could perhaps understand why the neuritis should be of a high grade, and, finally, also why this neuritis should be associated sooner or later with total blindness.

With regard to the deafness which was present in some cases of cerebellar tumor, it might perhaps be explained in a similar manner. The studies of Spitzka, Monakow, and others had made it extremely probable that the posterior quadrigeminal bodies stood in the same relation to the auditory fibers as the anterior did to the optic fibers. It would simply be necessary, therefore, to our explanation that the pressure should involve these structures in order that deafness should be a symptom.

When we turned our attention to the knee jerk we met with a problem of peculiar difficulty. It would seem that one would be justified in accounting for the loss of knee jerk, when observed in disease of the cerebellum, by the loss of muscle tonus.

It was extremely probable that lesions of the cerebellum acted like lesions elsewhere, in one of two ways—*i. e.*, either by destroying tissue and thus destroying function, or by acting as irritants. It was perhaps in this way that we could account for the fact that in some cases of cerebellar disease the knee-jerk was absent and in others present or exaggerated.

Dr. GRAY hoped that Dr. Dergum's explanation of the symptoms would prove true, and asked if the pupillary reflexes had been observed.

Dr. DERGUM replied that when the disease had advanced there was loss of reflex action to light.

Dr. PUTNAM spoke of a case of long-standing optic atrophy and practically no other symptoms. Although the optic neuritis persisted for two years, the autopsy showed a cyst and tumor of the cerebellum.

Dr. PRESTON asked if distinct loss of muscular sense had existed in Dr. Dergum's case. He had noted this symptom in two patients. In four of his cases the knee-jerks had been irregular, disappearing and occasionally returning.

Dr. KNAPP said that in all his cases, confirmed by autopsy, there had been neuritis or optic atrophy. In one case, where cerebellar tumor had been suspected, neuritis had not developed. Blindness had not been so constant. In another case the light reflex was lost when the pupils became dilated. Pressure on the corpora quadrigemina was most likely to produce blindness. He had never noted deafness. As to disease of the middle lobe of the cerebellum being responsible for the ataxic gait, he thought this view untenable.

Dr. LESZYNSKY, of New York, said he had observed a number of cases, two with autopsy. He thought the concomitant basal meningitis had much to do with the production of the optic neuritis, by extension of the inflammatory process along the nerve sheath. In many cases the neuritis was a late symptom. Where the neuritis or optic atrophy was accompanied by loss of light perception the pupillary reflex was always absent.

Dr. DERGUM did not believe the neuritis due to pressure, but more dependent on the location of the tumor. In his cases the neuritis had always been of high degree. Neuritis, blindness, and deafness indicated pressure on the mid-brain. He should look for cerebellar symptoms where the knee-jerk was variable.

A New Method for the Reduction of Dislocation of the Cervical Vertebrae.—Dr. G. L. WALTON, of Boston, in a paper upon this subject, said that since the publication of sixteen cases that had previously come under his notice he had seen several of similar character, and the fact had led him to the belief that this condition was not rare, though frequently overlooked. Reduction by extension usually attempted was unsuccessful. Spontaneous reduction had occurred, showing that direction was more important than force. This fact had led him to the discovery of the method theoretically correct, as shown by manipulation of the vertebrae and by experiments upon the cadaver made by Dr. Richardson, of Boston, and himself. The method had been recently demonstrated in practice by Dr. Beach at the Massachusetts General Hospital with successful result. The author continued, in illustration of the method: "Suppose the left articular process of one vertebra has slipped forward over that of the vertebra below and fallen into the depression anterior to the articular process. This bends the head to the left and turns the face to the right. The reduction is accomplished by extending the head diagonally backward to the right, so as to elevate the articular process, after which rotation to the left replaces the displaced vertebra. The transverse processes on the right act as a fulcrum. The ligaments which hold the vertebra firmly in the false position make no opposition to this manœuvre, which requires no force. In bilateral dislocation the same movements should be made, first on one side, reducing it to unilateral displacement, then on the other."

Dr. PUTNAM said that cases were more numerous than was supposed, and cited the instance of a man injured by a fall, who accidentally died through carelessness in his removal to a hospital.

Dr. SACHS asked if this method would be practicable in other than recent cases.

Dr. WALTON replied that the operation had been performed in one case of about ten days' standing. A case in which bilateral dislocation was produced spontaneously, with perfect recovery, would lead him to recommend the attempt at reduction, even after a number of months, should there be no doubt as to the diagnosis.

Acromegaly, Gigantism, and Facial Hemihypertrophy.

—Dr. C. L. DANA, of New York, read a paper with this title, and reported the history of a case of acromegaly with autopsy, also a case of gigantism or somatomegaly with some symptoms of acromegaly. The giant had a unilateral facial hypertrophy.

The first case was that of a full-blooded Bolivian Indian who was exhibited as a giant. He was thirty years old, height six feet seven inches, weight three hundred pounds. He had an enormous development of the malar and frontal bones. His thorax measured fifty inches in circumference. He died suddenly. On autopsy, the brain was found normal; weight, fifty-five ounces; the pituitary gland was greatly enlarged, measuring an inch in diameter. The thyroid weighed four ounces. The feet and hands had increased circumferential measurements. The brain presented interesting peculiarities of fissuration.

The second case was that of a professional giant, seven feet five inches tall, weight three hundred and fifty pounds, aged nineteen years. His muscular development was feeble. He had several symptoms resembling those of acromegaly. His most curious condition was a progressive unilateral facial hypertrophy, due mainly to osseous growth. It suggested an acromegaly attacking only half of one extremity. Only eleven cases of this affection were on record.

Dr. Dana said that acromegaly was sometimes associated with gigantism. He thought that many so-called giants were instances of pathological growth rather than excessive physiological development. There was much evidence to show that the pituitary gland had some function in these disorders. Among twelve autopsies, this gland had been found enlarged in ten.

Dr. DERGUM said that acromegaly was not associated with increase in the length of bones, but in their width. He regarded Dr. Dana's case as one of gigantism with acromegaly superadded.

Dr. GRAY considered it a question whether acromegaly and gigantism were not identical. We were still in the dark as to the pathology of acromegaly. He thought the cases presented did not warrant Dr. Dana's conclusions.

Dr. COLLINS looked upon them as two separate diseases. In gigantism the changes were in the cellular structure of the diaphyses and epiphyses, principally the former. In acromegaly the changes were confined to the epiphyses. Probably the disease of the pituitary gland stood in proper relation to acromegaly. Much depended on the method of examination. He had destroyed the gland in animals to see if acromegaly developed, but they had all died. He thought giants might suffer from acromegaly, and regarded it as a degenerative disease.

Dr. BRILL, of New York, asked what structures in the brain were usually involved.

Dr. COLLINS answered, the glandular structure of the prehypophysis.

Dr. DERGUM expressed the view that, as the other ductless glands were so often enlarged in acromegaly, to select a single gland seemed precipitate. No doubt the pituitary body might have important functions.

Dr. PUTNAM said that investigators had destroyed the gland in animals, producing polyuria, thirst, and debility. In view of the small number of autopsies we could not dogmatize. The gland had been found normal in three out of nine reported cases. He had seen temporary improvement in one case under the administration of thyroid extract. We were dealing with abnormalities of development and could not expect to discover lesions as the cause. In ten autopsies that had been made the thyroid had been found wasted in seventy-seven per cent.

Dr. SACHS was of the opinion that both conditions were re-

lated. Gigantism was a form of physiological excess, while acromegaly was a distinct morbid condition. He did not attach much importance to the influence of the pituitary body, but thought our knowledge of the exact etiology and pathology was still defective.

Dr. WEBER, of New York, had seen two cases. One patient had had symptoms of myxedema. He was inclined to believe gigantism to be excessive physiological growth.

Dr. MILLS had found at an autopsy a tumor that had destroyed the pituitary gland, but there was no acromegaly.

Dr. DANA said we did not know the functions of the pituitary gland in its relation to acromegaly, but it was certainly of some importance. He still believed in the clinical relationship between gigantism and acromegaly, but looked upon gigantism as an irregular type. He regarded gigantism as a pathological condition. The thyroid had not been enlarged in his case, but the pituitary gland had.

Thyroidectomy in the Treatment of Graves's Disease.

—Dr. PUTNAM read a paper on the treatment of Graves's disease by thyroidectomy. After calling attention to the fact that this operation had been done some forty times, mainly by German surgeons, with but two deaths and a very large percentage of cures or improvements, the speaker narrated a case from his own experience. It was that of a young woman suffering from a typical form of Graves's disease, of nine months' standing, and with a rather large goitre. The right lobe and most of the isthmus were removed. During and after the operation the patient's pulse ran up very high, and for several days she lay in an extremely prostrated and apparently critical condition. She then rallied, and now, at the end of six months, her condition was decidedly better than before the operation, though she was far from being cured. The remaining portion of the tumor had not shrunk and still showed a marked tendency to vascular enlargement. The voice was reduced to a whisper under the immediate influence of the operation, but had now nearly recovered its natural tone. This was not an unusual occurrence.

Dr. Putnam analyzed the reported cases from the following points of view: The immediate and remote effects of the operation (including the mortality rate after operation for goitres in general); the influence of the character of the tumor on the result; the degree and persistence of the improvement in favorable cases, and the character of the operation.

Finally, the question as to the nature of Graves's disease and the relation of the other symptoms to the goitre was discussed. It was pointed out that this relationship was probably based on the fact that the thyroid had important vascular functions. Strong emotions are capable of causing temporarily most of the symptoms of Graves's disease.

The reasonableness of the operation lay in the fact that in Graves's disease certain nervous centers were in a state of extreme irritability. Any means which would cut off a considerable number of excitations from reaching the unstable centers was likely to be beneficial by securing for them a partial physiological rest. There were various means, such as complete rest, the treatment of the naso-pharynx, etc., which might do this in a measure, but no one means was so effectual as thyroidectomy. The operation was, however, attended by a slight risk of death and by a greater risk of considerable temporary prostration and laryngeal paresis.

Dr. DERGUM had recorded the case of a man with all the symptoms of Graves's disease but the enlarged thyroid.

Dr. WEBER had noted recovery in a patient having all of the characteristic symptoms, under the persistent use of iodide of potassium. The dose had gradually been increased to three drachms daily.

Dr. E. D. FISHER, of New York, thought it would hardly seem probable that in Graves's disease the enlarged thyroid could be considered as acting in a mechanical way in producing the symptoms. He had seen many cases in Canada in which apparently no symptoms were produced. These persons had continued in their regular occupation without discomfort.

Dr. PUTNAM said that a large number of instances of goitre without symptoms had been reported, with autopsies. The patients, children in particular, had suffered from debility and there was dilated right heart. He gave a *résumé* of our present knowledge of Graves's disease, both experimental and clinical. He concluded that we had not sufficient data to establish a physiological basis for the disease.

Tabes and Syphilis.—Dr. SACHS, in a paper on this subject, assumed that recent statistics of Erb and others proved the close relationship between syphilis and tabes. This was established furthermore by—

1. The frequent occurrence of general paresis with tabes, and of tabes in the course of general paresis.

2. The occurrence of symptoms in the course of tabes which were often due to syphilis—the ocular palsies, loss of pupillary reflexes, and even the lightning pains.

3. The effect of mercurial and iodide treatment upon many of the symptoms of tabes.

The writer attempted a clinical differentiation of cases of tabes which were due to an active syphilitic process; among these he considered those which exhibited complete loss of reflex contractility of one or both pupils and ocular palsies. He reported *in extenso* a case of typical tabes in which, on post-mortem examination, a more recent syphilitic process had been found superimposed upon an old typical sclerosis. He next referred to the way in which syphilis might cause a spinal sclerosis. He gave reasons for thinking that this was largely due to degeneration brought about by syphilitic disease of the blood-vessels of the spinal cord. Altered states of the blood might be the prime cause of the change in the blood-vessels.

Dr. PRESTON regarded the syphilitic process as an arterio-sclerosis. Rarely was there hyperplasia of neuroglia without changes in the cells or nerve fibers. The tabetic process probably began in the blood-vessels. Traumatism seemed to be a most important etiological factor. He had seen improvement and relief of pain from the use of nitroglycerin.

Dr. MILLS looked upon the active lesions described by Dr. Sachs as probably causative of the sclerosis. Preceding the development of the sclerosis there might be leptomeningitis and disease of the vessels, which, if attacked early, might be relieved or removed; but the sclerosis once established, recovery was impossible. Posterior sclerosis often advanced at intervals by jumps, and these might sometimes be coincident with or follow the revival of active syphilitic processes.

Dr. PARSONS referred to two cases of syphilis followed by insanity and subsequent development of spinal symptoms.

Dr. SEGUIN still adhered to the idea that syphilis was only a predisposing cause for the groundwork of tabes. Certain cases occurred that were undoubtedly free from any history or evidence of syphilis.

Dr. KNAPP mentioned a case of primary syphilis superadded to tabes of two or three years' standing.

Dr. SPITZKA did not doubt that cases of tabes existed without syphilis. He had called the attention of the association to the same pathological condition about eight years ago.

Dr. WALTON thought the frequency of trauma in the production of tabes was overestimated. The ascending degeneration resulting from transverse lesions of the cord or from fracture could hardly be regarded as a typical tabes. If we could get at the real facts in all cases, the cases in which syphi-

lis existed without our being able to elicit the history, they would more than counterbalance those in which we mistook a chancreoid for a sign of syphilitic infection.

Dr. GRAY said there was an anatomical explanation for every symptom in tabes. In all cases he had seen he had been able to distinguish between spinal syphilis and tabes.

Dr. SACHS did not mean to say that spinal syphilis was the same as tabes. We should never omit prescribing the most active antisiphilitic treatment in the early stages of tabes. He did not believe every case was due to syphilis. In the large majority of cases syphilis was the prominent factor.

(To be concluded.)

Book Notices.

The Health Resorts of Europe. A Medical Guide to the Mineral Springs, Climatic, Mountain, and Seaside Health Resorts, Milk, Whey, Grape, Earth, Mud, Sand, and Air Cures of Europe. By THOMAS LINN, M.D., Doctor of Medicine, Faculty of Paris, etc. With an Introduction by THOMAS MUXSON COAN, M.D. New York: D. Appleton & Co., 1898. Pp. xxiii-330. [Price, \$1.50.]

As Dr. Coan has correctly stated in the introduction to this book, the mineral springs of the United States are sufficiently numerous and varied in their special characteristics to meet the demands of any patient; but the American invalid who asks his physician to decide upon a foreign health resort does so because he wishes to have the advantages not only of the resort but also of the sea voyage and the continental travel in which he will indulge as soon as the spring or bath he visits has produced some amelioration in his malady.

The author has prepared this volume for the purpose of giving briefly the necessary information regarding the most important of the European health resorts. He does not purpose that the volume should be encyclopedic, and reference to a number of the minor resorts is intentionally omitted; furthermore, the pages have not been filled with analyses of the various waters. The book is apparently intended to assist the physician in selecting a suitable resort for a patient proposing to go abroad and desiring advice regarding the place that will prove most advantageous for the treatment of his malady; and also to make suggestions to patients who may, for various reasons, prefer going to one country rather than to another, and who desire information regarding the necessary outfit, the expense, and other details connected with a visit to such a place. We believe the book will be found to be a useful medical guide to the European health resorts.

The Treatment of Typhoid Fever, and Reports of Fifty-five Consecutive Cases, with only One Death. By JAMES BARR, M.D., Physician to the Northern Hospital, Liverpool, etc. Introduction by W. T. Gairdner, M.D., LL.D., Professor of Medicine in the University of Glasgow, etc. London: H. K. Lewis, 1892. Pp. x-212.

The author is the first one to have brought to notice the treatment of typhoid fever by continuous immersion in water, the patient being allowed to remain in the specially arranged bath tub for a number of days without removing him for any purpose, unless there is some urgent indication, until the temperature is brought down to the desired degree. The results of the treatment by this method are encouraging. The various complications are considerably reduced in frequency of occur-

rence, and in severity and duration if they occur before the treatment has been begun. This is especially true of pulmonary, cardiac, and intestinal complications.

Nursing in Abdominal Surgery and Diseases of Women. A Series of Lectures delivered to the Pupils of the Training School for Nurses connected with the Woman's Hospital of Philadelphia, comprising their Regular Course of Instruction on such Topics. By ANNA M. FULLERTON, M.D., Physician in Charge of and Obstetrician and Gynecologist to the Woman's Hospital of Philadelphia. Illustrated. Philadelphia: P. Blakiston, Son, & Co., 1891. Pp. xiii-17 to 284.

The author's long hospital experience, both in this country and abroad, has amply prepared her to realize the necessity of giving a surgical nurse a larger scope of information than has been done by her predecessors. Her book is valuable not only for nurses, but also for medical students.

Botany: a Concise Manual for Students of Medicine and Science. By ALEX. JOHNSTONE, F.G.S., Lecturer on Botany, School of Medicine, Edinburgh. With One Hundred and Sixty-four Illustrations and a Series of Floral Diagrams. New York: D. Appleton & Co., 1891. Pp. xiv-260. [Price, \$1.75.] [The Students' Series.]

This text-book is intended and handsomely prepared for the use of students. As the author states, Professor Balfour's teaching is closely followed.

The neat illustrations and floral diagrams, with the appended glossary, facilitate the interpretation of the text very decidedly.

BOOKS, ETC., RECEIVED.

An Ovarian Tumor weighing One Hundred and Eleven Pounds removed from a Child of Fifteen, whose Weight was Sixty-eight Pounds. By W. W. Keen, M.D., Philadelphia. (Read before the Philadelphia Academy of Surgery, May, 1893.)

Laparotomy for Apparent Intestinal Paralysis which caused Arrest of the Intestinal Contents and was Equivalent to Intestinal Obstruction. By W. W. Keen, M.D., Philadelphia. [Reprinted from the *Kansas City Medical Index*.]

The Real Rewards of Medicine. The Valetudinary Address delivered at the Commencement of the Jefferson Medical College, May 2, 1893. By W. W. Keen, M.D., Philadelphia. [Reprinted from the *College and Clinical Record*.]

Proceedings of the State Sanitary Convention, held under the Auspices of the State Board of Health of California, at San Francisco, April 17, 1893.

Miscellany.

The late Professor Credé.—In a presidential address delivered not long ago before the Obstetrical Society of London by Dr. J. Watt Black (*Transactions*, xxxv, 1) we find the following interesting sketch:

"Carl Siegmund Franz Credé was born in Berlin on December 23, 1819. He died from carcinoma of the prostate at Leipzig on March 14, 1892, at the age of seventy-two. His father, who came of a French emigrant family which had settled in Hesse, was a high official in the Ministry of Public Worship and Public Instruction in Berlin.

"Credé began his medical studies in Berlin in 1838, and he took his medical degree there in 1842. He passed six months of his curriculum at Heidelberg, where he made the acquaintance of Naegele. His inaugural dissertation was entitled *De omphaloproptosi*.

"In 1843 he became assistant in the Obstetric Clinic in Berlin, under the direction of Professor D. W. H. Busch, and he held the appointment until 1848. In 1850 he became a Privat-Dozent of midwifery in Berlin. In 1852 he was appointed director of the Berlin School for Midwives and of the Lying-in Department of the Charité Hospital. At his instigation a gynecological clinic was established, and it was put under his charge.

"In 1856 he was called to Leipzig to succeed Jörg as professor of midwifery. He also conducted the Klinik and Poliklinik which Professor Germann had established under Professor Jörg. Soon after he went to Leipzig he founded an obstetrical society in conjunction with Ploss and others.

"In 1875 he was invited to succeed Eduard Martin in Berlin, but he declined on account of his age, then fifty-six years.

"In 1887 failing health led to his resignation of his appointments.

"In 1875, on his refusal of the call to Berlin, the Saxon Government conferred on him the cross of Commander of the Order of Merit, second class.

"In 1847 he married Fräulein Caecilie von Cebrow, and was permitted by Busch to reside outside the Lying-in Institution. He is survived by her and by three sons and five daughters.

"He was renowned as a teacher and beloved by his pupils, and he trained several of the most celebrated obstetricians of our time, including Ahlfeld, Fehling, Leopold, and Sänger. As a teacher, he devoted himself chiefly to obstetrics, but as time went on he also paid much attention to the teaching of gynecology. In the middle period of his professional life he undertook the major gynecological operations, and he was noted for his dexterity as an operator.

"In 1853 he joined with Busch, von Ritgen, and von Siebold in founding and editing the *Monatsschrift für Geburtskunde und Frauenkrankheiten*. When that periodical was discontinued, at the end of 1869, he founded the *Archiv für Gynäkologie*, and he continued to be one of the editors of it until his last illness. In August, 1881, when Spiegelberg died, Credé became sole editor, and he remained so for three years. He rendered signal service to obstetrics and gynecology in founding and conducting those two periodicals. As Leopold says, he was a born editor."

"His *Klinische Vorträge über Geburtshülfe*, or *Clinical Lectures on Midwifery*, is the only large work which he wrote, and it was never reissued after its completion in 1854. It contains the substance of his obstetric teaching.

"A much smaller work, his *Gesunde und kranke Wöchnerinnen*, published in 1866, gives the results of his lifelong experience. Among various interesting sections of it may be specially mentioned those on febrile excitement resulting from mental disturbance, digestive disturbance, retention of milk, etc., and the chapter on the prophylaxis of septicæmia.

"Credé's name will remain imperishably associated with two subjects, both of surpassing importance: the management of the third stage of labor, and the prevention of ophthalmia neonatorum and blindness.

"It was in the first part of his *Klinische Vorträge*, published in 1853, that he first promulgated his method of extruding the secundines. At pp. 599-601 he says that the simplest and most natural means of expediting the expulsion of the placenta is the excitement and the strengthening of the uterine contractions. In innumerable cases he had thus succeeded, without a single failure, in causing the expulsion of the placenta in from a quarter of an hour to half an hour after the birth of the child. He gently rubbed the fundus and body of the uterus through the abdominal wall, and he gradually increased the friction until he induced a strong contraction. When the contraction was at its height he grasped the uterus with his whole hand, so that the fundus lay in the palm, and the body was surrounded by the thumb and the four fingers. He thus, with gentle pressure, expelled the placenta, which he always felt slip out of the uterus from under his fingers. Generally the placenta was extruded entirely from the passages, and, at the least, it came into the lower part of the vagina. At this period he still recommended that when the placenta lay in the vagina it should be extracted by pulling at the funis.

"At the Conference of the Gynecological Section of the Association of German Naturalists and Physicians in Königsberg on September 17, 1860, as reported in the *Monatsschrift für Geburtskunde und Frauenkrankheiten* for that year (Band xvi, p. 337), Credé described his method, which he said he had practiced and taught for several years, as the method to be adopted in natural labors.

"In the *Monatsschrift* for 1861 (Band xvii, p. 274) he published an article, chiefly historical, Ueber die zweckmässigste Methode der Entfernung der Nachgeburt. In that article he said that he now taught and practiced his own method only.

"In an article under the same title in the *Archiv für Gynäkologie* for 1881, Band xvii, p. 260, he states that his method had been misunderstood by many, and that he had expressed the placenta, not only from the uterus, but also from the vagina. Sometimes this was done at the acme of the first or of the second uterine contraction after the birth of the fœtus, but generally at the acme of the third contraction.

"He latterly modified his procedure somewhat, and in the *Lehrbuch der Geburtshilfe für Hebammen*, 5th edition, 1892, p. 104, issued in conjunction with Leopold, it is recommended that the midwife should wait thirty minutes if there is no hæmorrhage, and then express the placenta. This is to be done by grasping the fundus uteri with the hand, the thumb being placed in front of the uterus and the four fingers behind it."

The American Dermatological Association will hold its seventeenth annual meeting in Milwaukee, at the Hotel Pfister, on Tuesday, Wednesday, and Thursday, September 5th, 6th, and 7th, under the presidency of Dr. George Henry Fox, of New York, besides whose address the programme contains the following items:

Antiseptic Treatment of Skin Diseases, by Dr. C. W. Cutler; The Principles of Antisepsis in the Treatment of Eczema, by Dr. H. G. Klotz; Cosmetics, by Dr. R. B. Morison; A Case of Tuberculosis of the Skin simulating Lupus Erythematosus, by Dr. W. A. Hardaway; A Case of Rhinoscleroma, by Dr. G. T. Jackson; Atrophia Maculosa Cutis, with a Case, by Dr. W. T. Corlett; General Discussions on Pityriasis Rosea (its ætiology, its relation to ringworm, seborrhœa, eczema, etc., and its treatment); on Dermatitis Exfoliativa (its clinical forms, its ætiology, and its treatment); and on the question What do we understand by Pemphigus? A Contribution to the Pathology of Acne Varioliformis, by Dr. J. A. Fordyce; Angeiokeratoma, by Dr. J. Zeisler; Lupus Erythematosus as an Imitator, by Dr. H. R. Crocker, of London; and a paper (subject not stated) by Dr. M. B. Hartzell.

The American Public Health Association.—In a preliminary circular dated August 1st, the secretary says that the twenty-first annual meeting will be held under a plan which will differ very materially from that of any former meeting. Through an arrangement entered into by the World's Congress Auxiliary and the association, the forthcoming meeting will constitute an International Congress of Public Health, and committees are already at work to make it a grand success. Invitations have already been extended to foreign countries to participate in the meeting, and to the most prominent sanitarians throughout the world to present papers.

The regulations which will govern this meeting are outlined in this circular. Particular attention is called to the fact that the meeting will be held in sections; therefore persons presenting papers will note under which section their papers will properly come. The classification given under each section will also suggest the topics upon which papers are desired.

It is suggested that members who intend to visit the World's Fair postpone their trip until the meeting of this congress, as there will be no better month in which to see the Fair. Another circular will be issued before the meeting giving additional particulars.

The following is from the circular issued by the committee having in charge the details of the forthcoming meeting:

This congress will be in session in the Art Institute Building, Chicago, October 9 to 14, 1893.

Membership in the congress is open without fee to all persons interested in public health, who comply with the formalities of registration.

The proceedings will be published by the American Public Health Association, and will be distributed to all members of the congress who, on the payment of five dollars and election, may become members of the American Public Health Association. This payment of five dollars entitles the member to a copy of the proceedings, is the only fee required, and is entirely voluntary.

Registration may be conducted in person or by correspondence, and it will facilitate the work of the congress for this to be accomplished as early as possible. To that end an official will be present in the Art Institute to attend registration every day during the preceding week, October 2d to 7th, from nine to five o'clock, and again on Monday, October 9th, during the same hours. Registration may also be accomplished later, according to placards in the hall.

Correspondence on this subject may be addressed to "The Registration Clerk, Public Health Congress, Art Institute, Chicago." Checks should be made payable to the Treasurer of the American Public Health Association.

Registration consists in recording the name, including designating titles; the official representation, if any; the permanent residence; and the local address (this may be omitted or changed at discretion). The particular section the member wishes to work with will also be noted. No charge is made for registration.

Special business meetings of the American Public Health Association will be held each morning, including Monday, October 9th, and also at 4 p. m. Monday, October 9th, for the election of members.

The opening session of the congress will be held in one of the large halls of the Institute, at 8 p. m. Monday, October 9th, and will be devoted to addresses of welcome by the president of the World's Congress Auxiliary, by the mayor of Chicago, and by the president of the American Public Health Association, and to responses by foreign delegates. These will be followed by the Inaugural Address by the president of the American Public Health Association.

The mornings of Tuesday, Wednesday, and Thursday, from ten to twelve o'clock, will be devoted to discussions in general of the meetings of the congresses upon the following topics:

Tuesday.—Diseases chiefly manifested in the air passages: Tuberculosis, diphtheria, pneumonia, their prevention or control through public health service.

Wednesday.—Diseases affecting the alimentary canal: the diarrhœa of childhood, cholera, enteric fever.

Thursday.—The eruptive fevers: Small-pox, measles, scarlet fever, and the diseases of modern life due to nervous conditions.

Friday morning will be given up to a business meeting of the American Public Health Association.

The general meeting of Saturday morning will close the congress.

The afternoons of Tuesday, Wednesday, Thursday, and if necessary Friday, will be devoted to the work of the congress by sections as follows:

I. International, National, and State Hygiene: Its Methods and Relations, including Vital Statistics. ("State," as here used, indicates an autonomous part of a nation, as a kingdom of the German Empire, an integral State of the American Union.)

II. Municipal Health Service. To include the control of the infectious diseases of men and animals, offensive trades, water supply, the disposal of excreta, garbage, and the waste of manufactories, schools, and public assemblages.

III. The Infectious Diseases of Men and Animals: Their Causes, Prevention, and Control.

There will also be general meetings of a popular character at 8 p. m. on Tuesday, Wednesday, and Thursday, when addresses will be delivered on public health subjects of general interest. The object of these is to disseminate general information on such subjects as the prevention of infectious diseases; the causes of ill health due to soil, air, and water; the health and sickness of self-supporters (workers).

All papers that are offered must be received by "The Secretaries of the Public Health Congress, Chicago, Ill.," before September 15, 1893, and titles and abstracts of these by September 1st.

Papers for the congress not written in English should be accompanied by an English translation.

The time for reading a paper in a section is limited to fifteen minutes, excepting when illustration is required or where special extension is granted, when five minutes may be added in each instance.

Thirty minutes is the extreme limit of a paper in the general session. Members desiring to discuss subjects before the congress must send their cards to the presiding officer in order to be recognized. The floor may not be occupied for more than five minutes.

It is desired to make the congress a demonstration of practical methods, and papers on elementary topics or theoretical views can not be accepted. Papers bearing on the objects of the congress are solicited from every source, but their acceptance must depend on the approval of the committees in charge of the congress. These committees are guided in this matter by the standing rules of the American Public Health Association. Resolutions of praise or censure, or committing the congress as such to special views, will be out of order.

The president of the American Public Health Association, which embraces the Dominion of Canada, the Republic of Mexico, and the United States, will be the president of the congress.

Honorary presidents will be appointed from other countries.

Vice-presidents of the congress and of the sections will be made from the countries represented.

All persons from beyond the United States who anticipate being present are requested to notify the secretaries as early as convenient. It will materially assist in the organization for the committees to be informed by October 1st of the Americans who expect to attend.

The Question of the Segregation of Lepers.—*The British Medical Journal* comments as follows on the recent report of the Indian Leprosy Commission: "The commissioners express their belief that neither compulsory nor voluntary segregation would at present effectually stamp out the disease, or even markedly diminish the leper population, under the circumstances of life in India. We invite the attention of the editor of the *Witenhage Times* and other public men in colonies where lepers exist to the comment of the committee on this statement. 'Your committee,' they remark, 'having already expressed their inability to accept the reasoning upon which the commissioners have based the above conclusions, are equally unable to accept the corollary that segregation in any case of leprosy in India is either impracticable or undesirable. They entertain a precisely opposite opinion, and would be sorry if the Government of India were encouraged by the report of the commissioners to refrain from taking the necessary steps in the direction of such segregation of lepers as may be found possible.' The members of the committee who have signed this unequivocal expression of opinion are Mr. Curzon (Under-Secretary for India), Mr. Edward Clifford, Sir Dyce Duckworth, Dr. Heron, Mr. Jonathan Hutchinson, and Mr. Macnamara. Sir Dyce Duckworth and Mr. Hutchinson, however, write separate memoranda, qualifying their adhesion to this document and deprecating the theory of contagion, and disapproving of compulsory segregation. But that still leaves Mr. Curzon, Mr. Clifford, Dr. Heron, and Mr. Macnamara committed to strong dissent from the opinion of the commissioners. The question is, therefore, in so far as the report is concerned, left an open one, and opinions regarding the contagiousness of leprosy and the means of suppressing it must be based upon such facts as are obtainable in this report and elsewhere.

"The wide difference of opinion prevailing on the points in question acquires great prominence from a statement of the medical members of the executive committee. Sir Andrew Clark, Sir W. Guyer Hunter, Sir James Paget, Sir Joseph Fayer, and Mr. Jonathan Hutchinson have expressed their dissent from the opinion expressed in the body of the report of the special committee on the subject of the contagion of leprosy, believing that the evidence of the spread of the disease by contagion is not sufficient to justify the compulsory segregation of lepers, and even seeing no sufficient reason for prohibiting the marriage of the leprosy. It is very clear, therefore, that, so far as the report is concerned, any one who wishes to form a conclusion regarding the contagiousness of leprosy must read it carefully for himself, and draw his own conclusions from the facts stated; and having done so, he must still further extend his studies to the reports and statements regarding leprosy which have been made during the last twenty years

by the Norwegian physicians, who have made it a subject of their life study. It is necessary to emphasize in such a matter the necessity for studying the writings of the Norwegian authorities.

"Without in any way depreciating the value of the commissioners' work in India, to which we have already done justice, it is as well to point out that it is possible to expect too much from the report. The time at the disposal of the commissioners was not sufficient in a question of this kind definitely to determine the chief questions to which they applied themselves. They have done excellent work in compiling valuable statistics regarding the distribution of lepers in India, and have constructed tables of great permanent interest, and they have been able, even in the short time allotted to them, to do much to brush away many of the superstitions connected with the ætiology of the disease; but their opportunities are not to be compared with those enjoyed by men like Hansen in Norway, who has been able to devote continuous work to the subject over a long period of years, with ample material and every assistance from his Government, and with a knowledge of the habits and idiosyncrasies of the population which it is impossible for Europeans to obtain in a country like India. Nothing is to be found in the report which can invalidate Hansen's conclusions regarding contagiousness; and they have been much strengthened by the commissioners, who, while bearing him out regarding the non-hereditary nature of this disease, have been able to suggest no tangible theory which might take the place of contagion in explaining the undoubted existence of leper families. Having in fact admitted that leprosy can be propagated by contagion and inoculation—for we presume that when they state that the extent to which it is so propagated 'is exceedingly small' they must admit that there are cases in which it is so propagated—it becomes incumbent on them to show in what way the cases which they suppose to originate *de novo* differ from those which originate by contagion. This they have not attempted to do. Practically their statements amount to this: A small number of cases of leprosy are caused by contagion; the majority of cases do not arise by contagion, but we do not know how they arise. It is almost impossible to take seriously the *de novo* theory, with its 'sequence or concurrence of causes and conditions related to each other in ways at present imperfectly known.'

"The commissioners have admitted that leprosy is a microbic disease, and they have admitted that in a few cases the microbe is conveyed by contagion, presumably contact with a leprosy individual. What practical difference does it make if we assume, as they do—a perfectly gratuitous assumption, of which they give no proof—that the microbes first get into space, and thence in some unexplained way into a human being? Even according to the statements of the commissioners, if the microbe of leprosy can be destroyed, or its access to human beings prevented, leprosy would cease to exist. We do not wonder, therefore, that men of the world like Mr. Curzon and Mr. Clifford should have agreed with Dr. Heron and Mr. Macnamara in hoping that the Government of India would take such steps to segregate lepers as may be found possible; for, so far as we yet know, the sole habitat and manufactory of the leprosy microbe is the body of the leper, and if we can segregate the leper and disinfect the discharges from his ulcers, we diminish the possibility of the spread of leprosy.

"In making these remarks, we specially have in view the desire to prevent the authorities in our colonies where leprosy prevails being discouraged by the report in their laudable desire to diminish leprosy by segregation. They must examine such evidence as is open to them, and base their action upon that, and not upon the opinions expressed in any reports. We have in a previous article expressed our sense of the merit of the work done by the commissioners, and we would now specially call attention to the great value of that part of the report which so effectually bears out Hansen's demonstration that leprosy is not an hereditary disease.

"Nothing that has happened in recent years can more effectually encourage investigators to search for themselves and form independent opinions than the effective way in which Hansen and the commissioners in India have disposed of this doctrine of heredity—a doctrine which has held a firm footing in medical dogma, and to a large extent influenced human action, for a great number of years. We consider that if the commissioners had done nothing else in India than com-

plete the destruction of this theory, the expenditure of time and the fatigues of the journey would have been amply compensated.

"Above all, we would earnestly urge all those interested not to be satisfied with abstracts of this interesting report, but to study it carefully as a whole. It is only in this way that they will be able to judge for themselves how far Dr. Heron and Mr. Macnamara are justified in stating that they entertain 'a precisely opposite opinion' to that expressed by the commissioners regarding the interpretation of the facts set out in the report."

So-called Craniectomy in Idiocy.—In an editorial, the *Lancet* says: "French Canada enjoys an honorable record in the care and cure of the idiot young. Half a century ago Seguin achieved results quite astonishing in the rescue of these unhappy 'victims to society's misdeeds.' His methods were those of the educator rather than those of the physician, but he broke ground on which medical advance was shown to be possible, inasmuch as he may truly be called the pioneer of that combined system of training, mental and physical, which has been pursued with such gratifying success at Earlswood, in Dublin, and in Dundee. Just sixteen years ago a new and a bolder method was introduced—again from French Canada. Dr. Fuller, of Montreal, advocated craniectomy for the relief of the idiot young, and in 1877 performed the first operation ever attempted with that object. He made an incision in the cranium of an idiot child, with the avowed aim of giving expansion to the cerebrum and of obviating the mischief arising from 'la suture prématurée.' The method was followed up—in France particularly; and on May 9, 1890, Dr. Lannelongue, professor of surgical pathology in the University of Paris, repeated Dr. Fuller's operation on an idiot girl of four years of age, and reported the case to the Académie des Sciences. His success appeared sufficiently encouraging to warrant other operators as well as himself to practice Dr. Fuller's method, and his first report was followed by two memoirs, in which he passed in review the results of twenty-five cases that had come under his own treatment. Of these he claimed twenty-four as 'cures,' and stated that the mean interval between the operation and its successful issue was ten days.

"Dr. Bourneville, one of the clinical staff of the Bicêtre Hospital in Paris, at a recent meeting of the Académie de Médecine read a paper on the entire subject, which, he thought, had been long enough under medical cognizance to justify a review of its present position. What have been the ascertained results of surgical intervention in cases of infantile idiocy? From the intellectual, moral, and physical point of view what benefits can we really trace to it? His answer, though not absolutely discouraging, does not seem to coincide with Dr. Lannelongue's somewhat sanguine conclusions. He admits, amid the scanty information that has come from abroad supplementing Dr. Lannelongue's experience, that 'une certaine amélioration' has in some cases been effected; but further than this he declines to commit himself, and desires more statistics scientifically checked. Nay, he has not been able 'préciser au juste' the improvement witnessed in the favorable cases, which he surmises may be due to the 'soins exceptionnels dont les petits malades ont été entourés.'

"Dr. Bourneville brought to the notice of the academy a collection of crania from the pathological museum of the Bicêtre Hospital, which seem to indicate very pointedly that in the case of idiots and arrested organisms of the same kind there is, generally speaking, no premature junction of the sutures. Moreover, by a series of photographs of the cerebra contained in these crania he demonstrated the existence of deep-seated lesions in the former—lesions of which the gravity awakened doubts as to the curative value claimed for craniectomy in the majority of Dr. Lannelongue's cases. Far too profound, far too extensive as well as intensive, far too diversified in his opinion are those lesions to have proceeded from osseous obstruction, or to be removed or even modified by Dr. Fuller's operation.

"Not only so, but, according to Dr. Bourneville, craniectomy has too often been productive of grave 'accidents,' of actual injuries, such as paralysis and convulsions—sometimes even of death itself. In these circumstances, so far from his counsel being (with Dr. Lannelongue) an abandonment of the medico-pedagogic method initiated by Seguin, he recommends a return to it—a return to it, that is to say, under the

more perfect conditions elaborated by skilled practitioners. Such a system, judiciously applied and perseveringly prolonged in suitable cases, may be expected to result in successes even more signal than those already achieved. At the same time, Dr. Bourneville would hardly induce us to put a veto on surgical intervention in infantile idiocy. Such intervention, practiced in cerebral lesions of apparently an even less hopeful character, has often enough realized expectations to warrant not only its repetition, but its extension to all cases in which osseous obstruction of the cerebrum has been fairly diagnosed. The truth, indeed, seems to lie between the methods of both schools—the surgical and the medico-educational. In Italy, as we pointed out just a year ago, Dr. Fuller's operation has been performed with such success as to have passed into the recognized resources of surgery. We have yet to obtain a series of statistics 'scientifically checked' which shall give us the results of a combination of the two systems—that of surgical intervention followed up, or rather accompanied by, that of the pedagogic authority."

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

AN IMPROVED METHOD OF
DRAINING THE ANTRUM OF HIGHMORE.*By GEORGE W. MAJOR, M. D.,
MONTREAL.

At the regular fortnightly meeting of the Medico-surgical Society, held on November 11, 1892, I explained, in the course of a discussion on antrum disease, a method of operating upon and draining that cavity. A brief *résumé* of my remarks appeared in the *Montreal Medical Journal* for February of this year; but, as I supplied no particulars to the publishers, I take this opportunity of presenting the several points in detail to the fellows of this association. In doing so, however, I do not wish to convey the idea that I am offering an altogether new procedure, although in some respects, perhaps, differing from the methods usually described in the literature of the subject.

Some years ago I tabulated one hundred and eighty-nine cases of myxomatous nasal polypi in which antrum disease presented itself in thirteen instances.

More recently I have a record of eleven examples of antrum disease in which myxomatous polypi of the nose occurred in seven cases, and hypertrophy of the middle turbinated body in the remaining four. In one of these latter—a case which had been previously operated upon through the inferior meatus, in Paris, without any perceptible benefit—double empyema of the antrum was observed; the only instance in which I have observed disease of both sides. That the disease may be intermittent I have no reason to doubt, as I have within the past six months had under my care a patient in whom the discharge only occurred when some acute inflammatory process affected the nasal passage, and in whom, after removing an excess of hypertrophied turbinated tissue and an outgrowth from the septum, the discharge has altogether ceased. So that in all cases I would recommend the removal of nasal obstructions of whatever nature before resorting to the opening of the antrum.

I do not propose to discuss the merits or demerits of making an outlet for the discharges through the nasal passage, but can not refrain from remarking that it seems but reasonable to hold that the counter opening for drainage should be at the lowest possible point attainable, and that, unless very good and sufficient reasons exist to the contrary, this opening should be through the alveolar region. The presence of a diseased tooth is not always an essential concomitant, but the morbid action produced by a diseased tooth, although the tooth has been extracted, may be so perpetuated as to keep up a constant discharge, extending over, as in one instance, a period of twenty-nine years.

A discussion as to whether diseased teeth are the sole

and only cause of antrum disease does not properly come within the scope of this article. I may be permitted to state it as my experience, however, that diseased fangs are the most prolific cause, and that the myxomatous degeneration of tissue found so often in the neighborhood of the ostium maxillare is secondary to the antrum disease. On two occasions I have succeeded in tracing empyema of the antrum as the direct sequence of frostbite of the cheek. Occasionally the swift removal of a diseased tooth and the temporary drainage thus acquired may be all that is necessary to check a discharge. This class of case is somewhat rare, and an opening of a more or less permanent nature is usually called for.

Method of Operating.—When a suitable space is found in the jaw from which a tooth has been previously removed, I apply a ten-per-cent. solution of cocaine, and proceed to drill the bone without further preparation. The instrument I have been in the habit of using for perforating the jaw is simply the ordinary twist drill used by machinists, filed down at the shank so as to fit a dental handpiece. An electric motor is employed for working the drill. The time consumed in perforating does not exceed a few seconds, and the procedure is absolutely painless. I prefer to drill in a slightly oblique direction from before backward; my object in doing so is the better to facilitate the retention of the drainage-tube. The diameter of the drill selected varies somewhat in each particular case. I usually employ two sizes only—viz., five thirty-seconds of an inch and three sixteenths of an inch, the latter preferred.

Immediately after withdrawing the drill, the cavity being cleared of secretions, a piece of soft pine wood, previously whittled down to a size slightly smaller than the drill and with a protuberance at its lower end, is inserted into the opening. A paste of plaster of Paris of proper consistence for taking a cast of the upper jaw is now applied by means of an impression cup and allowed to set. When ready for removal it is gently withdrawn, and with it the wooden plug firmly held in the cast.

The object of using the wooden spile is to get the exact direction of the opening in its relation to the margin of the jaw.

A metal alloy, fusible at a low temperature, is now poured into the cast and a model of the upper jaw with the opening in position is the result. The model is handed to a mechanical dentist, and upon his skill and ingenuity we must largely depend. The drainage-tube I keep on hand in sizes to suit the drills employed, a shade smaller than the latter, however, so as to allow for any swelling and consequent contraction in the caliber of the opening, a suitable length of which is supplied the dentist. The tube is made of pure gold and is drawn to order by a working jeweler.

The tube should at first be of sufficient length, when *in situ*, to stand slightly above the level of the floor of the antrum.

If shrinkage in the length of the opening occurs, as is especially likely when a tooth has been extracted very re-

* Read before the American Laryngological Association at its fifteenth annual congress.

cently, the tube can be subsequently shortened at its antral end. It is well at first to have a tube fully long, as otherwise the drainage may be interfered with by the valve-like action of the recently torn mucous membrane, or by granulation tissue at some period subsequent to the operation.

A sheet of gold beaten out on the metal model will be an exact fit for the gum in the neighborhood of the opening. The gold tube passed through the opening in the model is soldered to the plate and the drainage-tube proper is complete.

When but a single tooth is wanting a pair of arms may be made to loosely encircle the tooth posterior to the space. This will be found sufficient to hold the drainage-tube securely in position, as the oblique direction of the opening in the bone gives to the appliance a counter pressure. When a greater number of teeth are absent the gold base is to be imbedded in a suction plate of vulcanized rubber, to which small clamps may be attached to secure it to the teeth fore and aft. When a plate containing a number of false teeth, or even a complete set, is worn, the tube with its base is readily attached.

For washing out the antrum, I procure an ordinary single-bulb enema syringe (such as Davidson's No. 1, with metal fittings), and file down to a conical point one of the attachments so as to make it perfectly fit the opening in the drainage-tube.

By means of such an arrangement sixteen ounces of liquid may be made to pass into the antrum and escape at the ostium maxillare in less than a minute. To prevent the entrance of food into the antrum, the tube is fitted with a vulcanized rubber plug so designed as to present a rounded head at its lower or buccal end sufficient to prevent its slipping into the tube and to render it easy of removal with the fingers. The tube may be removed at pleasure for the purpose of being cleaned, but should not be allowed to remain out for any length of time, as the opening will be found to contract very rapidly. In my opinion, too small a tube is a mistake, as thickened secretions will not flow so readily as in one of larger caliber. For washing out the antrum I ordinarily employ a solution of boric acid in warm water, and direct the patient to wash out the cavity every three or four hours for the first few days. Peroxide of hydrogen, in varying strengths, I have found to be too irritating for long-continued employment. Where the secretions continue thick and tenacious, an alkaline solution to which a little carbolic acid is added is often useful. For dry dressings I use insufflations of iodol or of iodol and boric acid.

I wish to express my indebtedness to Mr. J. C. Nichol, surgeon dentist of this city, for valuable assistance and practical suggestions offered me in the carrying out of the mechanical treatment of diseases of the antrum during the past sixteen years.

Toronto University.—The *Dominion Medical Monthly* expresses its regret to learn that the financial condition of the medical faculty is unsatisfactory, and states that a special meeting of the senate has been called to consider the matter.

THE USE OF OZONE IN ATROPHIC CATARRH.*

By CLARENCE C. RICE, M. D.

This paper will necessarily be a short one, since what can be said of the chemical composition, physical properties, and therapeutic value of ozone can be easily read in any chemistry or in pamphlets compiled by the Ozone Manufacturing Company of New York. I have used ozone only during the past two months, and while I can not speak decidedly of its value in the treatment of catarrhal diseases, the results so far have been satisfactory enough to warrant calling the attention of this association to its use in atrophic catarrh.

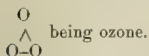
Dr. William J. Morton, of this city, for whom the Ozone Company have manufactured an extensive apparatus for the generation of ozone, and who has used it for various purposes during the past year, first called my attention to the use of ozone in catarrhal disease of the upper air passages, and alleged a therapeutic value for it. Before speaking of the therapeutics of ozone and the method of using it in catarrhal disorders, I may give a short history of what is known of its chemical composition and physical properties and describe the methods used for its manufacture. I am indebted to the Ozone Manufacturing Company of this city for the larger apparatus which they have placed here for your inspection, and to Dr. Augustus Caillé, of this city, who has loaned me the smaller apparatus of Messrs. Labbé and Oudin.

Physical and Chemical Properties of Ozone.—In 1775 Van Marum noticed that the passage of an electrical discharge through the atmosphere produced a peculiar odor, but the reason of this was not discovered until 1840, when Schönbein observed that this same odor accompanied the process of electrolysis in acidulated water. He discovered, too, that these odoriferous gases had the power of decomposing iodide of potassium and liberating iodine. By experimentation it was found that ozone was similar to, though quite different from, chlorine. The credit of discovering the true composition of ozone is due to Marignac and De la Rive, who demonstrated that ozone could be obtained by simply passing a current of electricity through pure oxygen gas. In this way it became apparent that ozone could be nothing else than an allotropic modification of oxygen. Schönbein named this peculiar gas ozone, from the Greek word *ὄζειν*, which means "to emit an odor." The knowledge of the present day in regard to the relation between the two kinds of oxygen— O_2 and O_3 —has been derived principally from the writings of Professor Tait. As is well known, the chemical formula for ozone is O_3 , and it is an allotropic form of oxygen, just as carbon may be found in the allotropic forms of charcoal, graphite, and the diamond. Oxygen may exist in the different forms of O_1 , or active oxygen; O_2 , or common oxygen; and O_3 , or ozone. In the formation of ozone three volumes of oxygen are condensed to form two volumes of ozone—that is,

* Read before the American Laryngological Association at its fifteenth annual congress.

$3O_2 = 2O_3$. In volume, then, it bears the relation to oxygen of 2 to 3. Common oxygen, O_2 , when coming in contact with active oxygen, O_1 , becomes concentrated into ozone, or O_3 . Ozone has been called ozonized air, ozonized oxygen, and electrified oxygen.

From Sir Benjamin Brodie's experiments (*Proceedings of the Royal Society*, 1892, p. 435) it is positive that ozone differs from ordinary oxygen merely in the fact that its molecule contains three atoms instead of two, O-O being oxygen,



Ozone is a colorless gas, quite similar in chemical properties to chlorine. It will liquefy at a temperature of 105° under a pressure of 125 atmospheres, and in this form is of a deep blue.

At one time Schönbein advanced the theory, and it was generally believed, that ordinary oxygen gas was a compound made up of two kinds of oxygen, one being positively and the other negatively electrical. Marignac observed that when oxygen was exposed to the influence of electricity it underwent a contraction in volume and acquired very different properties, its chemical activity being greatly increased.

The ordinary way of obtaining ozone is by means of a Siemens induction tube, which consists of two tubes of nearly the same diameter, one within the other. Their exterior surface is covered with tin foil, and this tin foil is connected with the electrodes from an induction coil. The current of oxygen is passed through the space between the two tubes, and is thus exposed to the electrical current. It is said to be very essential that the oxygen which is to be ozonized should be very pure and very dry. Ozone may also be obtained in small quantities by decomposing water with the electric current. Ozone has remarkable oxidizing power. It destroys substances like rubber, paper, etc. Its effect upon mercury is to deprive it of its mobility so that it will adhere to the surface of a mirror glass. The books tell us that ozone in Nature is principally formed by the action of the sun's rays on oxygen. Schönbein maintains that ozone is the great purifier and oxidizer in the atmosphere, and in a large measure prevents decomposition.

The Ozone Company pamphlet tells us that the utility of ozone as a disinfectant is hinted at by its early discoverer, Schönbein, who in 1851 (*Zeitschrift für nat. Medizin*, Bd. xv, 391) maintained that one part of ozone to 340,000 parts of air was sufficient to destroy the odor of decay in a vessel of 60 litres capacity in which 120 grammes of putrid meat had been placed for a minute, and that Wood and Richardson forced ozonized oxygen through blood in course of decay, and noted that by this means the blood completely lost its offensive smell.

The value of ozone as a bactericide is now under trial by Dr. W. J. Morton and Dr. W. C. Park. I have seen the results of their experiments, but they will be published by these gentlemen later on. Dr. W. Wysschowicz has recently stated, in regard to experiments with bacterial cultures in ozonized nutrient media, that the ozone effected a

change in the nutrition furnished the cultures which prevented their propagation.

The large apparatus for manufacturing ozone, which has been placed at our disposal to-day by the Ozone Manufacturing Company, consists of a dynamo, a blower, a transformer, and an ozone generator proper. The dynamo supplies the current, which then passes for conversion to the necessary high potentiality to the transformer, from which it is conducted by suitable connecting wires to the ozone generator. This latter is constructed of four ozone tubes, placed round and connected by tubes to a central metal pipe, through which the air is received from the blower. The air, passing from thence to the ozonizers, becomes ozonized by the silent electric discharge or effluvium which takes place through the walls of the concentric glass tubes. The blower, driven by a small belt from the dynamo, supplies the air to be ozonized, which, before reaching the generator, is forced through the drying tube. The latter is filled with glass in fine pieces, moistened with sulphuric acid. Ventilators are provided in the sides of the cabinet, containing and supporting the different parts of the apparatus. These are operated by screwing in and out, and they serve to carry off the heat generated by the dynamo when in motion. The longer the air is exposed to the electric effluvium, the greater is the quantity of ozone produced. The flow of the air may be regulated by the valve which will be found at the lower end of the rubber tube, conveying the air to the generator. The blower being provided with a blow-off valve, there is no danger to the apparatus from overpressure. Experience will soon establish the amount of air necessary to obtain the most satisfactory results. When generating ozone, the tubes of the generator should show, in a darkened room, the blue light of the electric discharge or effluvium. The absence of this light shows that either the commutator or drying tube requires attention. Should the ozone be found too irritating, pass the ozonized air through a two-necked Woulfe's bottle containing a solution of caustic potash—a pound of caustic potash to the gallon of water.

The smaller ozone generator which I present to the association was constructed by Dr. Labbé and Dr. Oudin, and has kindly been sent to me by Dr. Augustus Caillé, of this city. Dr. Caillé has used this instrument quite extensively, and published his observations of its use in a paper entitled *Experiments as to the Value of Nascent Ozone in Certain Forms of Diseases of Children, with Demonstration of an Efficient Generator*. Dr. Caillé says of this ozone generator that it is made up as follows: "A mild electric current, from a zinc-carbon cell or storage battery, is sent into a Ruhmkorff or spark coil, and from there enters the inhaler, which is a double cylinder of glass, the inner cylinder being closed and holding an aluminium plate *in vacuo* and surrounded by an aluminium cone. The electrical discharge is not in the form of a spark, but presents a diffuse electrical glow." I suppose that the aluminium tin foil simply acts as a conductor for the electrical current, and thus presents a large electrified surface to the oxygen.

Dr. W. J. Morton began to use ozone in cases of nasal

catarrh without special regard to the kind of nasal disease. The method employed has been to instruct the patient to take a deep inspiration, and then hold the breath while the ozone gas is allowed to pass into the nostrils through the tube. The current of ozone is passed as long as the patient can hold his breath. The patient is then instructed to blow the ozone out of the nostrils before taking the first inspiration of atmospheric air. The degree of irritation produced by ozone upon the nasal and pharyngeal mucous membrane is in proportion to the volume of gas employed, and depends also upon the purity of the gas used. One of the patients accidentally inspired a strong current of ozone, and the next day suffered from an aphonic laryngitis.

Ozone in condensed form irritates the respiratory mucous membrane, and may cause active acute inflammation, etc. In Dr. Caillé's paper, already referred to, he states that Messrs. Labbé and Oudin have published extensive experiments in the use of ozone, and that they allege for its use, first, increased metabolism in consequence of the high oxidizing power of ozone, and, second, the destruction of the tubercle bacillus, in consequence of the oxidizing power and extreme diffusibility of ozone, and its ability to reach directly and indirectly the foci of disease in the lung.

Dr. Caillé's experiments with ozone were employed to test its efficacy in the first stages of pulmonary tuberculosis, in extreme anemia, and in pertussis. His observations extended over five months and comprised twenty-two cases. His conclusions are: That the daily inhalation of ozone increases the oxyhæmoglobin in the blood from two to four per cent. in a short time; that no local improvement was obtained in three typical cases of limited apex tuberculosis, but that, in pertussis, ozone inhalations have a distinct curative effect as regards the duration and severity of the disease. Also that, in anemia, ozone inhalations are exceedingly valuable from a therapeutic standpoint, and give better and prompter results than any other form of medication. And, lastly, that atmospherical disinfection is readily secured by means of the ozone current, making this probably a valuable procedure in the treatment of diphtheria, scarlet fever, and other infectious diseases.

Before calling your attention to my own cases I wish to refer to a paper written by Henry S. Norris, M. D., of this city. The title of this paper is *The Internal Administration of Ozone in the Treatment of Phthisis, with a Report of Cases*.* The report has no special bearing upon the object of this paper, except as it shows that the general tone of the patients treated with ozone was improved. The report covers fifteen cases, fourteen of which are put down as catarrhal phthisis and one as fibroid phthisis. The inhalation of ozone gas was not used in these cases, but aquozone and ozonized cod-liver oil were administered. The aquozone was given, four doses daily of three ounces each, before meals, and half an ounce of the oil containing six volumes per cent. of ozone after each meal. The results in many of the cases were beneficial.

Speaking now of the effect of ozone gas when admitted into the nostrils of patients suffering from nasal disease, I

may say that the first case I observed was treated by Dr. W. J. Morton. He treated this case for the purpose of checking a profuse nasal discharge.

It was a boy of twelve years of age who suffered from apparent nasal obstruction and constant nasal discharge so irritating in character as to keep the upper lip constantly excoriated. He used ozone gas in the nostrils two or three times weekly, covering a period of a few weeks, and the result was that the discharge was almost entirely stopped, the inflamed lip cured, and the patient breathed better through the nose. The patient was sent to me for examination, and I found it to be a case of rather marked adenoid enlargement in the vault of the pharynx. The entire mucous membrane was quiescent at the time I saw him.

I wrote Dr. Morton that in such a case I did not think ozone was as applicable as in atrophic rhinitis, as I believed that the removal of the adenoid would entirely relieve both the nasal obstruction and the pent-up secretions of the nose. It seemed to me that if ozone possessed the powerful oxidizing, germicidal, and bactericidal properties alleged for it, its use would be indicated in those forms of nasal disease which were characterized by decomposing secretions and degenerating tissues, the entire condition possibly depending upon the action of nasal bacteria. Since then Dr. Morton and I have employed the local effect of the ozone gas upon eight different patients, all of them suffering from various grades of atrophic rhinitis and dry pharynx. Of these eight patients, three were treated at the office of Dr. Morton, and he has used a much larger amount of ozone gas than I have at my office. Dr. Morton's apparatus was, as I have said, manufactured by the Ozone Manufacturing Company, while the apparatus at my command is that of Labbé and Oudin. I had the smaller apparatus connected with the storage cells of my cautery battery, and have my patients breathe it into the nose and lungs and exhale it through the mouth. With Dr. Morton's apparatus the current of ozone gas is so strong as to be too irritating for inhalation into the lungs, although it can be modified to any degree. It is hardly necessary to give a detailed history of the cases—that is, the pathological condition in each case—because they are all very much alike.

Three of my cases were advanced to an extreme condition of atrophic change, so familiar to all of you. In two the turbinates had almost entirely disappeared. The septum was ulcerated, and the secretions were collected in thick scabs. Of the two cases I sent to Dr. Morton's office, one was far advanced in atrophic change and the second was but moderate in degree. All of the cases were treated with the ozone gas from five to eight minutes. In Dr. Morton's cases the gas was passed into the nostrils three times—that is, while the patient was holding the breath for three different periods. The immediate effect of the ozone gas was alike in kind in all the cases, but differed in degree according to the volume of the gas employed, and probably according to the sensitiveness of the nostrils. It produced a mild smarting of the nasal mucous membrane for several hours. It increased the secretions of mucus very markedly for eight or ten hours. The congestion of

* Norris. *New York Medical Journal*, November 5, 1892.

the mucous membrane of the nose was also exaggerated. In some of the cases, where the volume of gas was large, the patients complained of headache, which, however, had disappeared by the following day. It was almost the universal testimony of these patients that the nasal pharyngeal mucous membrane was less dry, and that the tenacious secretions were more easily got rid of. For the first twenty-four hours after the ozone was used the patient had the symptoms of a cold in the head, but after that the nose felt unusually clear and the mucous membrane more comfortable than before the application of ozone.

The milder cases of atrophic catarrh were very quickly benefited, and remained improved for several days after the inhaling of the ozone, but most of them relapsed somewhat. The benefit was again obtained, however, by the further treatment with ozone. Whether permanent moistening of the mucous membrane and decrease of secretions can be obtained by the use of ozone can be told only after a longer trial. In the more severe cases the benefit was not obtained so quickly. In all the cases we instructed the patient to discontinue the use of all sprays and douches while we were using the ozone. In a case of *ozæna* treated by this method the deodorizing power of the ozone seemed to be as marked as is obtained by the use of peroxide of hydrogen. The odor from the nostrils was very fetid, but disappeared altogether after the second inhalation of ozone gas. I have used a preparation called by the Ozone Company "therapol," a combination of sweet oil and 8-75 volumes per cent. of ozone, applying it locally on cotton, with an applicator, in two cases of *ozæna*, with the result of deodorizing the nostrils.

As to the manner in which ozone may be expected to produce beneficial results in atrophic disease of the upper air passages, it is known that ozone is an active oxidizing agent, furnishing the active O_3 , which is ever ready to seize upon and form itself into new combinations. Upon this oxidizing power its germicidal properties may be based. It is possible that in atrophic rhinitis there may be bacteria of a peculiar variety, the destruction of which, if it can be accomplished by ozone gas, will tend to greatly ameliorate the disease. Possibly the irritation produced, which we usually term stimulation, is of therapeutic value.

123 EAST NINETEENTH STREET.

The Pan-American Medical Congress.—Papers have been promised as follows for the Section in Pathology: Notes on Three Years' Work in the Pathological Laboratory of the Charity Hospital in New Orleans, by Dr. Henry Dickson Bruns, of New Orleans; The Medical Geography of Puerto Rico, by Dr. A. J. Amadeo, of Puerto Rico; Theories of Inflammation, by Dr. José Torres Matos, of Havana; On Inflammation, by Dr. E. O. Shakespeare, of Philadelphia; On Cholera, by Dr. Herman M. Biggs, of New York; L'État d'hyperexcitabilité du nerf phrénique dans le bérubéri, by Dr. J. B. de Lacerda, of Rio de Janeiro; Paludismo, by Dr. A. J. Amadeo, of Puerto Rico; Bacteriological Observations on the Waters of the Harbor of Havana, by Dr. Acosta and Dr. Grande; Observations on Malaria, by Dr. Coronado and Dr. Madau; The Operations of the Antirabic Laboratory in Havana, by Dr. Acosta; Abscess of the Liver, by Dr. James E. Reeves, of Chattanooga; On Influenza, by Dr. Ramon Gutiérrez, of New York; Observations on the Brains of Feeble-minded Children, by Dr. Henry W. Cattell; The Pathology of Pelvic Inflammatory Trouble, by Dr. Joseph Price, of Philadelphia.

SEXUAL ERETHISM:

ITS NEUROTIC ORIGIN AND TREATMENT.*

By A. D. ROCKWELL, A. M., M. D.

Few morbid conditions cause more unhappiness or are attended with more disastrous results than disturbances of the sexual function. He who sees only here and there and now and then cases of this kind has but little conception of the vast sum of misery around him which is either silently borne or finds expression in some mad act of crime or in suicide. I do not refer so much to those cases of sexual perversion which assume such protean forms and which have been so graphically described by Krafft-Ebing. These people, while in an abnormal mental state as to their genital system, are so in many and perhaps in most instances by choice, through voluntary self-abasement. They cherish this condition of sexual perversion, many of them, as the opium eater and inebriate cherish their destructive appetite. For these perverts we may feel pity, but with it are mingled profound feelings of disgust.

My experience has been that while a certain proportion of these sexual perverts would gladly be free from the chains that bind them, and are eager for help to this end, a far larger proportion are as morally depraved as the followers of any other form of vice, and, equally with them, have capacity for self-reform. There are, on the contrary, a large number of unfortunates who, without fault or wish of their own, are in a continual state of sexual erethism that is abnormal and pathological. Of the many sexual neurasthenics that have fallen under my observation in the course of a considerable experience, I have met with no class that appeals more strongly to one's sympathies. While these cases of priapism with inordinate sexual desires occur among all classes, it is interesting to note here, as in sexual neurasthenia generally, that the largest proportion of cases are found among the educated and intellectual, the moral and religious—men of sensitive natures who are overwhelmed with shame at the idea of revealing their true condition. I have personal knowledge of two cases of this character—in one of which suicide was the final result, and in the other loss of position and reputation. The last case was that of a young clergyman who sought advice for his unfortunate condition only after his prospects had been in a measure wrecked by his failure in an unguarded moment to keep this erotic tendency under control. He could hardly be held accountable for this final libidinous outbreak. The irritation of the erection centers became finally too great for endurance and created a sudden and irresistible impulse.

It should be borne in mind that true priapism is of two kinds—one attended by a peculiar tension or contraction of the intrinsic muscular fibers of the trabecule and sheaths of the organ, of long duration. It is frequently unattended by any marked libido sexualis, but its persistency, continuing as it does for hours and even days, occasions very decided suffering. Its origin may be purely reflex from pe-

* Read before the Section in General Medicine of the New York Academy of Medicine, May 16, 1893.

ripheral sensory irritants, or from causes that are central but organic. More specifically an irritable prostate, hæmorrhoids, stone in the bladder, and phimosis are a few of the pathological conditions that give rise to priapism through pressure on blood-vessels or through reflex nervous influences. The troubles induced through these reflex causes, however, though often severe, are usually transient and amenable to remedies or surgical procedures directed to the exciting cause. More serious are those cases dependent upon tumors or other diseases of the cerebellum and pons Varolii, or lesions of the spinal cord in its cervical or lumbar region.

The other, and perhaps the most important form of sexual erethism to which I especially desire to call your attention, has for its origin neither irritation of the periphery nor lesions of the nerve centers. It is purely functional, and I would apply to it the term "psychical," for the reason that the operations of the mind are involved to a degree not apparent in structural and organic disease of the nerve centers or peripheral irritations. Priapism from central organic and peripheral causes may, indeed, be attended by excessive sexual ardor, as well as by physical discomfort, but the mind is not greatly influenced and the victim is not in any marked degree a sufferer, except as he suffers physically.

Sexual erethism of the psychical type is a very different affair. It belongs to the class of cerebro-spinal neuroses and demands quite other methods of treatment. It becomes, therefore, a vitally important point to correctly diagnosticate between these cases of peripheral origin and those that are central, but at the same time functional. If there is no apparent organic disease of the central nervous system, ordinarily both the surgeon and physician will seek to account for the abnormal sexual condition through some peripheral irritation, and if they find it in hæmorrhoids, in a redundant prepuce, in urethral irritation, or in any one of a number of causes that might be mentioned, and by removing the cause cure the patient, they do a good thing. But if, as I have often observed, these various operations utterly fail to relieve the patient, much time and force have been uselessly expended, and in some instances he has even been left in a worse condition than before.

Some years ago I was consulted by a young man who suffered from abnormal erections and who had actually submitted to two distinct operations—the removal of a redundant prepuce and an operation for hæmorrhoids; and, in addition, an operation upon the eye, as a possible reflex cause, had been advised, to which, however, he did not submit. He was not in the slightest degree benefited by either of the operations, for the reason that no peripheral irritant was responsible for his condition. The cause was neurotic, and he fully and promptly recovered under entirely different methods of treatment.

While acknowledging that many cases of priapism are directly caused by external irritations, and may therefore be relieved by operative procedures, I know too well, from much experience, that in many cases it is vain to hope for relief through surgical measures. The difficulty often is that, in deciding upon the course to be pursued, no dif-

ferentiation of symptoms is attempted. Diligent search is made for the supposed source of irritation, and, when it is found, relief by surgical methods is attempted. The surgeon should not ignore the psychical element, but be sure to eliminate that before resorting to the knife for the cure of a condition that may belong to the class of neuroses. And that it is not so very difficult in many instances to arrive at interesting and important diagnostic conclusions is, I think, illustrated by the following recent case:

Mr. X., a clergyman, aged forty years, came to my office, and, after long delay and marked hesitancy and confusion of manner, related substantially the following history: "I am," he said, "in a most lamentable and even desperate condition. I fear that my memory is deserting me, and that I bid fair to become both a mental and physical wreck." He gave evidence, however, of not the slightest physical weakness, and, as I soon found, when his mind was diverted, both memory and other intellectual processes were as vigorous as ever. He had been married but five years, and, by mutual agreement based on their ideas of personal purity and religion, and perhaps also on an almost complete lack of sexuality on the part of the wife, he had to a considerable degree suppressed sexual inclinations that were naturally very strong. He did not, however, become unbearably annoyed through these efforts of repression until some two years ago, when priapism would occur and continue for hours, diverting his mind from study and irresistibly directing his thoughts in such licentious channels that he became at times overwhelmed with anguish and despair. Intercourse brought only partial and temporary relief, and sometimes he would lie awake for hours after a repetition of this natural effort for relief with erections that would not subside. He was in constant fear that he would commit some act of folly when alone with certain of his female parishioners, and for this reason resorted to methods and excuses to avoid meeting them alone that he thought might seem to them strange and inexplicable. This worried him greatly also, and so he conquered his timidity and reserve and came some hundreds of miles desperate for relief. I ought here to add that, some six months previously, he had been operated upon for a redundant prepuce, but without result. I examined him thoroughly, and although I found hæmorrhoids and a slight varicocele, both of them sensory irritants that might act reflexly on the erection centers, it was evident to my mind that they had little, if anything, to do with the symptoms. The psychical element predominated, indicating that the treatment should be directed to overcoming a neurosis and not a purely physical defect.

The patient was placed upon the use of a suitable combination of the bromides and a bitter tonic, and, what was perhaps as important, his wavering morale was upheld and strengthened by some much-needed instruction and legitimate assurances of recovery. The correctness of this view of the case was demonstrated by the following extracts from a letter which I soon after received from the patient, and I give them because the whole history is most interesting and instructive as a type of a class by no means small: "The results in my case," writes this patient, "have been simply marvelous, and I have a higher appreciation of the skill of a good physician than ever before. When I came to you one great trouble I confessed was 'an imagination utterly corrupt, which prevented any continuous study.' Since using your medicine and following your advice, I find I have a good healthy imagination, almost free from voluptuous images. Again, instead of the unsatisfied, burning desire for sexual intercourse, which came again and again during the day and night, the desire now is very moderate

and at times not perceptible. Instead of repeated erections when alone, all seems comfortable and quiet. Only one of the symptoms I spoke of still remains, and that is the insane desire to take hold of women (who perhaps tempt me), to caress and fondle them and play with them. The presence of certain women excites my passions, but by no means in the same measure as before I began your treatment. Please remember that I never took liberties with women in former years, but was exceedingly proper in all my relations with the sex, and please remember that I have not yielded to this desire, no matter how strongly tempted, yet I find it remains. I can not account for it in a man of my education and habits. I have trembled and do now lest some time it prove too strong for my will. I also told you that my wife was a very chaste woman, and that she regarded my desire to fondle and look at and admire her form as signs of manly weakness. She thinks yielding to these things only hurts me and excites my passions. I can only confess that these desires exist, sometimes almost overwhelming me, and I don't know how to get rid of them. A few words in explanation: That desire to look at and fondle women is much stronger than the longing to have intercourse with them. I have thought at times that if I once went to a bad house and had a good look and nothing else, I would be satisfied and the desire would leave me. Then, again, I have been afraid that this would only be adding fuel to the fire, and that the desire would grow stronger than ever. If this terrible longing is due to some disorder of my system, I want the physician's help; if it comes from a wicked heart, I'll fight it till the day of my death; you, perhaps, can help me to decide."

I might easily relate case after case of this kind as they have from time to time fallen under my observation, but it would simply involve a substantial reiteration of the points of salient interest. What I wish to reiterate and emphasize is, that this excessive sexuality belongs in many cases to the family of the neuroses, is essentially a psychosis, and that it is of the most vital importance not to fall into the error of mistaking a condition due to neurotic inheritance or to environment for one due to simple reflex or direct organic irritation.

And now as to the treatment of these cases:

I know of no greater satisfaction that comes to the physician than to be the instrument of relieving the sufferings of a sexual neurasthenic. The gratitude of one who has recovered from an ordinary acute or chronic disease is one thing, and the gratitude of a sexual neurasthenic who has been freed "from the body of this death" is another, and it is quite certain that by the judicious and persistent use of certain remedial measures much can be accomplished for the relief of these cases. Among medicaments we naturally turn first to the bromides, and, as a rule, we make no mistake in so doing. But that the bromide of potassium should not be prescribed alone to get the best effects that it is capable of giving is a lesson that has been pretty thoroughly learned. In combination with other bromides or with chloral or belladonna, with the zinc preparations, with some of the bitter tonics, or with iron, we have at our command a remedy that is simply invaluable both as an arterial sedative and as an antaphrodisiac. The tolerance of the system to bromides is in some cases very remarkable, and very fortunately so, for frequently it is necessary to persist in their use for many months. As

an illustration of the amount that can be borne, and the length of time it can be taken without apparently injuring the constitution, I may refer to a case of mine in this city in which the patient took for ten years a drachm daily of the bromide of potassium. It is now seven years since her last epileptic attack and five years since she discontinued the use of the bromides, but to-day her general appearance and health and strength are in every way perfect. While this is perhaps an exceptional instance of the great toleration of the system to the bromides, and while there may be temperaments that would be injured by such doses long continued, yet special idiosyncrasies prohibiting its use do not, as a rule, prevail, and by a judicious watchfulness we soon learn when to discontinue the treatment and when to resume it, when to lessen the dose and when to increase it.

Some time ago my attention was called to gelsemium by a patient who professed to have experienced benefit from its use. Recognizing the fact that it acts as a sedative on the excitable nerve centers and reduces the sensitiveness of the terminal nerves, I have been induced to give it a trial, and am quite sure that it has in several cases proved palliative. It is of value more as a temporary expedient and for the purpose of supplementing the action of the bromides when it has been found necessary to discontinue their use for a while. Lupulin is another remedy which may be of some service, especially when given in connection with gelsemium. Monobromide of camphor in doses of three to five grains has in some cases proved useful, but it should be used with care.

A remedial measure that sometimes affords temporary relief is to frequently immerse the organ in water as hot as can be borne. By temporarily distending the superficial vessels relief is afforded to the congested and swollen tissues. Local applications of electricity, however valuable in cases of impaired sexual activity, are, as ordinarily employed, of little value in this condition. Theoretically, however, the galvanic current applied by means of the depolarizing electrode is undoubtedly indicated, and practically it has in several instances, I am sure, served a good purpose. By this method the irritating effect of the cathode is wholly eliminated, and the parts are brought under the influence of the anode alone. The sedative and toning effects of general faradization may also be usefully employed in this condition.

I have confidence in mental therapeutics, especially in the management of the functional neuroses, that has been justified by many special experiments and a considerable experience. Mental therapeutics is an invaluable aid not only in functional nervous conditions, but to a certain extent in organic diseases of the nerve centers and even in acute diseases. In the various manifestations of sexual neurasthenia especially we can often do much toward the relief of the patient by encouraging him to turn his own mental forces on his body. No class of cases tends to more thoroughly depress the patient and take from him all hope and ambition than this, and in no class where the symptoms are so distressing and persistent as in sexual neurasthenia are we so sure of affording relief. These patients,

like so many neurasthenics, are possessed with exaggerated and absolutely erroneous ideas in regard to their symptoms, their origin, possible results, and relation to other symptoms and diseases. They need not only encouragement, but instruction, and it is exceedingly gratifying to note how quickly some of them respond to treatment directed alone to the morale.

A CASE OF SARCOMA OF THE TONSIL.

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Mrs. H., aged fifty years, had, in the summer of 1891, "an ulcer of the right tonsil, which her physician burned with the nitrate of silver, causing the ulcer to heal in a short while." From December, 1891, until June of the following year Mrs. H. suffered from time to time with what she termed "little white places on the tonsil," but, as they caused her very little inconvenience, she paid no further attention to them than to gargle her throat with some simple wash. In June, 1892, Mrs. H. took, as she thought, cold, which settled in her right tonsil. *This became rapidly swollen, while at the same time the glands in the right side of her neck began to swell immensely.* At the same time there appeared in the pillars of the right side of the fauces a semi-odematous swelling, involving the whole length of the pillars. After a few days the enlarged tonsil began to bleed, while under a curette the tonsil tissue "broke down as a cancerous womb does." The ulcerated surface was scraped several times, antiseptic washes and solid nitrate of silver being applied to the surface. The glands in the neck became much smaller in size. The swelling of the pillars, however, increased. When I first saw the case—July 25, 1892—the following was the condition of affairs: Considerable induration of the glands in the neck at the angle of the right jaw. These glands were not swollen so that each gland stood out distinct, as is often the case in scrofulous or in syphilitic patients, but they were matted together, as it were, showing a thick infiltrate in the lymphatics among the glands, the swollen mass being apparently rather the result of invasion of the lymphatic system at the angle of the jaw than simply hypertrophied glands. This enlarged area was in no way painful on pressure. The mouth could be opened without discomfort. The right tonsil was seen to be immensely hypertrophied, being enlarged especially at its lower part. Its surface was ragged, irregularly ulcerated, and covered with a dirty, whitish exudate. The secretion from it did not seem to be excessive, *nor was there much disturbance of the salivary system*, since during the examination the patient was not obliged to expectorate once; the odor of the breath was offensive. The pillars on the right side and lower part of the soft palate above were infiltrated, thickened, semi-odematous along their edges, but nowhere ulcerated. The patient's appetite was poor, and she had been losing flesh for the past few weeks. No disturbance in swallowing. The whole of the affected area had a suspicious, "ugly" look. There was, however, one point worthy of note: *The process was not painful.* While the glands of the neck had been acutely swollen the throat had pained, but after they had gone down the pain had disappeared. Of course there was a sensation of discomfort in the throat, but no constant pain. Pieces of the tonsil could be pulled off with the forceps, and would come away so easily as to suggest disintegration of the tonsillar mass. The wounded area would bleed slightly. Neither the hypertrophied tonsillar

mass nor the pillars of the fauces were unusually sensitive to the finger or probe. Treatment consisted in removing from time to time parts of tonsil as it would break down, application of nitrate of silver, antiseptic washes, etc.

August 9th.—No further involvement of the lymphatics of the neck. Pillars of the fauces have become more infiltrated and harder. Most of the tonsillar mass has been removed. Appearance of a tumor of about the size of a pigeon's egg in the soft palate at the junction of the pillars on the right side. This tumor is hard to the touch, but not painful. Nor is the throat as yet the seat of pain; the swollen condition of it, however, makes the patient prefer liquid food. *The absence of pain is so marked that, in spite of the fact that it is little likely a tertiary syphilitic gummatous tumor would produce a similar appearance*, large doses of iodide of potassium are ordered. After taking a few doses symptoms of iodism appeared, while there was superadded a second inflammatory process in the lymphatics of the right side of the neck. This inflammation in a measure subsided under the application of tincture of iodine externally.

19th.—The lymphatics of the whole of right side of the neck, extending beyond the sterno-mastoid muscle, are involved. The tumor in the soft palate has increased in size. The patient complains of a sensation of itching in the right ear, with a constantly present unpleasant sensation in the ear. The post-nasal mirror shows that the chain of lymphatics extending down the right side of the pharynx from the Eustachian tube behind the posterior pillar is immensely enlarged and infiltrated, while the right side of the upper pharynx shows the same swollen, infiltrated appearance. It has not, however, passed the middle line. The itching in the ear is probably due to involvement of the Eustachian tube. The right pillars of the fauces are further hardened and thickened, while the lower part of the posterior pillar forms two or three lobular masses which are beginning to ulcerate. Elsewhere there is no ulceration. The process is further extending below the posterior pillar into the pyriform sinus. *And yet the patient suffers no marked pain. Nor is there any marked salivation.*

26th.—Throat is at last beginning to be painful. Sickening pain, constant, in the right ear. Iodide of potassium quickly produced coryza. Patient has, however, persisted in its use until she is now taking forty minims saturated solution three times a day, and notices little ill effect from the same. Tumor on the soft palate, as well as the infiltration in the right half of the naso-pharynx, increasing in size. Swelling of the lymphatics of the neck has diminished considerably during the past week, until it is the same size it was in July. This swelling is, however, beginning to be painful on pressure. As yet no marked salivation.

September 16th.—Mrs. H. has been to New York to seek advice in regard to operative measures for the removal of the tumor. Several surgeons agreed to undertake the operation, although they all agreed the growth was malignant and gave the most unfavorable prognosis. To have removed the growth, as it was on August 26th, meant the removal of the right half of the soft palate, the right pillars of the fauces in their entirety, the whole of the right retrotonsillar tissues, the whole of the membranes covering the right half of the upper cervical vertebrae from a level with the tonsil to the base of the skull, the pterygoid and hamular processes of the right side of the sphenoid bone, and then the whole of the lymphatic system on the right outer side of the neck. Tracheotomy as a preliminary operation was a matter of course. A possibility of removing the growth entire seemed not to exist. Mrs. H. declined to be operated upon and returned home. Condition to-day: *Absolutely no pain*, that existing in the ear having disappeared. No salivation. No dif-

faculty in speech or swallowing. Appetite good; patient eats whatever she pleases. Sleeps well. Patient has fattened several pounds. Swelling of the glands on the outer side of the neck reduced to two nodules, the infiltration of the lymphatic system of the neck having disappeared. The lower nodule is a little sensitive on pressure. The redness of the pillars and of the tumor in the soft palate has almost subsided, giving place to an anæmic, "solid" œdematous appearance. The anterior pillar is less swollen. The posterior pillar is more swollen than ever and is pushed forward so that its free edge is on a plane with the anterior pillar. The infiltration in the naso-pharynx has increased in size and extends forward at its upper part to the boundary between the nose and upper pharynx, as though it would enter the nasal cavities of the right side. The mass is not painful to the touch, nor is there any ulceration anywhere. Under the suggestion of the patient's family physician, iron and arsenic were prescribed.

October 1, 1892.—The lymphatics of the right neck have within the past two weeks swollen to a degree such as they have never before been swollen, and the swelling has involved the chain to the root of the neck. The swelling has, however, gradually disappeared until to-day there is no trace of it left, except two or three glands lying along the middle and lower parts of the right sterno-mastoid. The pillars of the fauces have diminished in size, are nowhere ulcerated, but are very hard to the touch. The tumor in the soft palate has not diminished, but seems rather to have increased in hardness. The infiltration beneath the tissues of the upper pharynx has apparently diminished in size, as has also the infiltration of the lateral pharyngeal lymphatics. No pain. No salivation. Appetite good. Patient sleeps and feels well. Has gained seven pounds in weight. Within the past day or two there has appeared a desire to sneeze frequently. Nose, however, is clear. Dose of arsenic increased.

November 1st.—Condition of the fauces same as October 1st, except that the growth has increased in size. Uvula pushed over to the left. Growth in the soft palate one fourth as large again as on October 1st. The growth has now filled the space between the faucial pillars from top to bottom on the right side, until it looks like an immense hypertrophy of the faucial tonsil, which it is not, however, as the tonsil, as before mentioned, was entirely ulcerated away. Furthermore, this growth proceeds from the whole length of the posterior pillar. The tumor in the soft palate has a smooth surface, is hard, and has to the finger the sensation of firm cheese. The tumor along the edge of the posterior pillar is lobulated, one of the lobules being as large as the last joint of a man's little finger. The growth is not painful, either subjectively or under pressure. *The glandular swelling of the neck has disappeared*, except in a small area about the level of the hyoid bone, where the glandular tissue can be felt under careful palpation to be slightly swollen. The growth shows nowhere any sign of superficial ulceration, nor any tendency to it. The surface of the growth is pale, anæmic-looking; is nowhere inflamed in appearance. The only inconvenience that the patient has is that particles of food sometimes lodge in between the anterior pillar and the growth. There is beginning to be a muffled tone to the voice. Removed the largest of the nodules for microscopic examination. Under the scissors the growth cuts with as little resistance as cheese would offer; is firm and white, and shows little tendency to bleed.

23d.—Dr. W. M. Gray, of Washington, D. C., reports the part of the tumor sent him to be "a round-cell sarcoma; the small round cells predominate. Although it contains many cells of a larger variety, yet it had best be classed with the small-cell variety." On November 10th I removed under co-

caine, with the aid of a snare and a pair of tonsil scissors, all that I could of the growth below the level of the soft palate, the whole length of tonsillar sinus, and posterior pillar. The roots of the growth were found to extend outward the whole length of the sinus between the anterior and posterior pillars, to spring from the whole length of the posterior pillar. The tumor in the soft palate, which was beginning to ulcerate, was not touched. The throat became very painful after the operation and remained so for ten days, when the surfaces of the cut places began to heal.

December 8th.—The growth in the soft palate has destroyed the mucous membrane over it until its ulcerated surface is as large as a silver half-dollar. Constant annoyance rather than severe pain. Removed the growth in the soft palate beneath the ulceration. Found that it extended through all the tissues from before backward, so that when I was done the posterior pharyngeal wall was visible through the hole. I then found that the growth had sent its prolongations into the tissues about the pterygoid processes. Furthermore, in the postnasal space, filling the lower part of the right side, was a mass of the growth, which seemed to be attached to the chain of lymphatics that runs along the side of the upper pharynx and to the soft palate posteriorly.

January 15, 1893.—The right side of the fauces from the hard palate to the base of the tongue is one ulcerated surface; immense swelling of the glands of the neck on the right side, extending below the collar bone; *swelling of the glands on the left side of the neck*; considerable pain on swallowing. Anti-septic washes are useless. The part of the soft palate between the mass removed December 8th and the free border has ulcerated through, and the lower part of the soft palate, hanging as a flap, was removed. More or less salivation.

February 6th.—General involvement of the pharyngeal region, especially above the soft palate. Patient has great trouble in shutting her mouth. Examination shows that along the anterior border of the ramus of the lower jaw of the right side there has developed a tumor about the size of a partridge egg, perhaps smaller, and when Mrs. H. attempts to shut her mouth the upper jaw shuts down on and squeezes this tumor. Removed with aid of tonsil scissors and cold snare. Bleeding not worth mentioning. This growth resembled the rest of the tumor; cuts like cheese, so that it could be scraped out after the capsule over it had been slit.

25th.—Immense swelling of the glands in the *left side* of the neck followed the last operation. This swelling, however, in a great measure subsided after a few days. There is still, however, considerable enlargement of the left lymphatics.

April 21st.—Increase in size of growth and involvement of lymphatics of both sides of the neck. Growth involves now both sides of the soft palate; has extended into the uvula whole length. No marked salivation. Pain considerable, but chiefly from the neighborhood of the ramus of right side of lower jaw bone, where, owing to involvement of coverings of ramus, there is pain with each movement of the jaw. Removal of the uvula, which was enlarged several times and hung so low in the pharynx as to offer obstruction in swallowing; also as much of the tumor mass about the ramus as thought advisable. There is another point worthy of mention. The growth when cut bleeds scarcely at all, and *wherever it has attacked the muscular tissues it retains its whitish appearance and cheese-like consistence and offers almost no resistance to the knife or wire.*

May 30th.—Removed from the right side of the base of the tongue a piece of the growth of the size of a sparrow's egg. The growth seems to have extended by direct continuity from the lower part of the pillars of the fauces. Patient's nose

breathing is again perfectly free and patient no longer snores. Patient says on May 25th something back of her nose "broke and discharged a good deal of matter." Probably a part of the growth which involved the upper surface of the soft palate. Growth continues to advance along the hard palate and upper jaw. Has gotten beneath the aponeurosis of the right side of the pharynx, which side is elevated half an inch more than the corresponding side. Growth has made its appearance on the right cheek near the angle of the jaw. The area of infiltration is about an inch in diameter. Glands in the neck much smaller than a month ago. Have now to be felt for in left side. No salivation.

The growth in the uvula was examined by Dr. Ward A. Holden, of New York. It was found to be a small-cell sarcoma.

The further history of this case is unnecessary for the purposes of this article.

In regard to the possibility of making a diagnosis of the nature of the growth in July, 1892, a few words may be said. In the first place, the patient's mother had died of "carcinoma of the liver"; then there was early involvement of the lymphatic glands; from the appearance of the tonsil itself, the growth might have been either carcinoma, sarcoma, or tertiary syphilis. In my endeavors to make this growth fit into any description of tumors of the pharynx, I have made use chiefly of Bosworth's excellent work on the throat, and it was my failure to find there, or anywhere else, such an accurate description of the possibilities of a small-cell sarcoma, that decided me to watch this case and report it as it appeared to me. Bosworth's work, then, is used as a text for the following remarks, and the failure of the symptoms and history of this case to correspond in some points with what are the generally received views of the race run by one of the growths of the pharynx is not reported to cast a slur upon what is the best work on the nose and throat with which I am acquainted, but to show that there are still many points in connection with growths in the pharynx which have not received attention.

Bosworth says the development of sarcomatous growths of the pharynx is somewhat insidious (page 373), and the history of the case here reported bears out this statement. To my mind, there is no doubt that the growth had existed at least a year before it came under my observation. The throat trouble, which had existed to a greater or less degree since July, 1891, points to this. In this case the fact that Mrs. H. had had all her life enlarged tonsils, which were always more or less troublesome, would tend to explain why the formation of a painless growth in them did not give her any especial concern. And, furthermore, the hypertrophy of the tonsil explains in a measure, perhaps, why the sarcoma should have had its origin here. Mrs. H.'s mother died of carcinoma, and there is, from what we know of malignant growths, at least a presumption that there is such a thing as an inherited lack of resistance to the formation of new growths in the offspring of parents who have had malignant growths, if there be not an actual tendency to the formation of these growths. In any of the surface lymph tissues wherever hypertrophy has taken place, these tissues are thereafter never free from inflammatory processes until Nature has destroyed by inflamma-

tion the hypertrophy. This is notably true in the case of the faucial and pharyngeal tonsils and of the adenoid basis of the conjunctiva. And there are apparently some reasons for believing that sarcomata will locate themselves at places which are for long periods of time subject to unrelieved inflammation, the sarcomatous principle or tendency being, of course, present. Let us take, for example, the appearance of a sarcoma in the walls of an antrum which for years has been the seat of an untreated purulent process, due to polypus, etc. Bosworth says (pages 381-382): "Sarcoma is usually regarded as a disease belonging to the earlier periods of life; and yet, curiously enough, when invading the tonsil it seems to belong more particularly to adult life. This, I think, is especially remarkable when we consider that the lymphatic tissue which makes up the faucial tonsils is in adult life in a state of almost absolute quiescence or atrophy." I should not be surprised, were statistics at hand to determine the point, if we were to find that sarcomata almost never originate in healthy tonsillar tissue, but in hypertrophied tonsillar tissue, which, as I said above, is never in a state of "absolute quiescence," but always is in an inflammatory condition.

Bosworth (page 383): "The progress of sarcoma differs from that of carcinoma in that this form of malignant disease extends forward to the base of the tongue and palatine arches, whereas sarcoma shows a tendency to remain stationary or to extend backward into the oropharynx. The only instance, as far as I know, in which it has been known to extend forward into the mouth was that of Gray, in which the gums and palate were involved."

This statement is of little value, or is only of value in one of the kinds of sarcoma of the tonsil. Judging from the case of Mrs. H., I should say that a small-cell sarcoma could travel in any direction. In this case it traveled through the pillars, into the soft palate, into the uvula; on to the base of the tongue; into and beneath the aponeuroses of the pharynx; into the tissues of the cheek; into the ramus of the lower jaw; into the gums of the upper and lower jaw. What determines its path of extension I do not know. Certainly not the denseness or looseness of the tissue before it, for it invades and destroys bone as well as muscle tissue. In regard to the involvement of the lymphatics, it surprised me not a little to find my patient at one visit with the whole lymphatic system of one side of the neck swollen and tense, while at the next I could find no evidence of lymphatic engorgement save in one or two small glands which required some search to show their presence. This ebb and flow of the tide in the lymphatics continued with considerable irregularity for about six months, when the glands remained permanently enlarged to a greater or less extent. And, finally, when the sarcomatous process had crossed the middle line of the soft palate and the other tonsil had become involved, the glands of both sides of the neck became enlarged. When I first saw the case the involvement of the lymphatics made me incline to carcinoma as the cause of the trouble. When, after a while, the lymphatic swellings disappeared, the possibility of carcinoma became less. It finally occurred to me that these swellings of the lymphat-

ies of the neck were not due to direct extension of the sarcomatous process to them, but to the presence in the lymphatics of some morbid material carried to them from an inflammatory process set up in or about the growth by its extension. This conclusion was reached by noting that contemporaneously with the acute swelling of the lymphatics of the neck the patient would complain that her throat was sore. Whether in the finally chronically swollen lymphatic glands existed sarcomatous cells could only be determined by the microscope.

Bosworth (page 384) says: "As a matter of fact, the tendency on the part of a sarcoma to become the seat of suppurative or ulcerative action seems to be a comparatively rare event, except such erosions as naturally occur on the surface of the tumor when impinging on neighboring parts." Again, these remarks are not borne out in full by the above case. Hypertrophied tonsils, development in them of a small-cell sarcoma, which rapidly broke down the tonsillar tissue, causing extensive ulceration of the tonsil with destruction, passed into the soft palate and formed a growth which quickly ulcerated over a space the size of a silver quarter; caused the formation of an abscess which had its seat in the upper inner part of the soft palate and which for a while obstructed the nasal breathing. Such is the history here. The ulceration in the soft palate here was due to "superficial caries, the result of rapid cell growth" (Bosworth, p. 385). I can not explain the cause of the abscess.

This case was treated for some months under the supposition that it was ulcerative tonsillitis (cf. Bosworth, p. 385, l. 12).

Hæmorrhage as a Symptom.—It can almost be said that this growth refused to bleed, so little blood would flow as the result of removal by the scissors or snare of large pieces of it. The removed parts were whitish in appearance, showing the fewness of the red blood-cells. Nor was there any marked tendency to bleed from the ulcerated surfaces. The different capacity for bleeding of different sarcomatous growths is a matter worthy of comment. One which I removed four times bled more and more copiously after each removal, until at the time of its final recurrence it had become so vascular that it was with difficulty that so small a puncture as that made by a hypodermic needle could be made to cease bleeding. This, however, was a giant-cell sarcoma.

"The presence of the growth naturally excites an increased secretion from the normal mucous membrane of the fauces" (Bosworth, p. 385).

The absence of any marked salivation, such as is found in cases of carcinoma or epithelioma, is also to be commented on. Naturally at the times when there was an acute inflammatory process at work in the throat, as evidenced by an acute enlargement of the glands of the neck, there was a tendency to marked increase of saliva. But, generally speaking, the increase in the amount of saliva was not sufficient to be the cause of serious inconvenience to the patient.

The absence of marked pain during the early history of the growth is also to be noted. And except the pain,

which was general, at the times that the throat was acutely inflamed (*vide supra*), the pain was rather inconvenience due to the position and extension of the growth than of an acute, localized nature. At one time—about the latter part of August, 1892—the throat was for some reason quite painful for a few days. This was, perhaps, due to the involvement and rapid extension of the process in a new area.

In the beginning of these remarks reference was made as to the possibility of deciding, from the gross appearances of the case, between carcinoma and sarcoma when I first saw the growth. I do not know that it could have been done.

As to treatment—cleansing washes, removal from time to time of parts of the growth as they extended to regions where they were the cause of marked inconvenience, and attention to the general health. The involvement of the lymphatics—not to mention the amount of the faucial tissues involved—made me unwilling to attempt complete extirpation of the growth.

EARLY VIABILITY OF TWIN FŒTUSES.

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ST. JOSEPH, MO.

THE experience of obstetricians and the records of both single and multiple births demonstrate that the viability of the fœtus is very grave as to prognosis and uncertain prior and up to the termination of the seventh month.

The traditional theory that an infant born at the seventh month is more likely to survive than one born at the eighth has never been borne out by facts, is not correct in principle, and is beyond the pale of reason and ordinary sense. The law in all Nature was and now is that the nearer the bud, germ, or embryo approaches to the mature fruit in either natural or physical development, the greater the probability it possesses of surviving; it is thus the "survival of the fittest."

Playfair writes: "There is little or no hope of a fœtus living before the twenty-eighth week or seventh lunar month." He also writes: "Several cases are on record in which after delivery at the sixth month the child survived and was reared" (page 235).

A. Charpentier writes in the *Cyclopædia of Obstetrics and Gynecology*: "The end of the seventh month is of interest as being perhaps the earliest period at which the fœtus can be born with any reasonable chance of surviving" (page 197).

A case in practice may be of interest, which will add two to the record of viable births at six months and a half.

Female twins were born to Mrs. E. (primipara) at St. Joseph, Mo., February 22, 1893, in premature labor, the development and external appearances assigning them at six months and a half utero-gestation, and this was corroborated by calendar data. Both infants were fairly developed; the skin was thin, dark red, and wrinkled; short white hair appeared on the head and slight down on other portions of the body; the lower jaws and chin were retracted and set farther back; the nails

were semi-formed, covering only half the area of the distal matrices; the upper two centers of the sterna were ossified; the lower three centers were cartilaginous; the upper and lower limbs were of equal length; the eyelashes and eyebrows had just commenced to appear.

Their combined weight two days after birth was three pounds avoirdupois—one weighed a pound and a quarter; the other, a pound and three quarters. Length of fetuses, seven inches and a half and nine inches respectively.

The infants at birth were so small and their advent was so premature that particular care had to be taken to continue to them the small prospect of surviving which they possessed.

They were placed in a large willow basket which was lined with woolen blankets and cotton batting, the basket inclosing three jugs containing hot water and occasionally supplemented by the addition of bottles containing hot water.

These caloric receptacles and radiators were replenished morning and evening to maintain uniform heat, and under the ministrations of a skilled nurse, zealous and attentive, the directions and suggestions of the attending physician were carefully followed with the happiest results.

The infants' mouths were too small to admit the nipples of the breast, being a fourth of an inch in diameter of aperture when distended, and small bottles were provided with pointed rubber nipples, which could furnish an easier method of nursing.

These were filled with milk which had been warmed after being pumped from the breasts of the mother. After five days' feeding in this manner the use of the mother's milk had to be discontinued, on account of a failure in the supply, and an artificial product resorted to.

Peptogenic milk powder was prepared and administered with very favorable results. The infants assimilated it with ease and took it with avidity, and, although they have not grown fat and plump, yet the muscular system is firm and hard, and they increase in strength and evince activity of temperament.

Their combined weight at three months and a half of age is ten pounds and a half—five pounds and five pounds and a half.

From May 22 to May 27, 1893, they were on exhibition in Curio Hall, Eden Musée, St. Joseph, Mo., with their parents in attendance, both in good health and bidding fair to live long lives.

The interesting features which the case presents are:

1. The early period of utero-gestation with viability.
2. The absolute necessity of maintaining the temperature of 100° F., to facilitate the circulation of the blood and aid growth.
3. The importance of carefully measuring and administering a suitable quantity of milk at an elevated temperature.
4. A sedulous regard to rest in sleep, which should not be disturbed by unnecessary waking.

June 1, 1893.

The Death of Dr. Edward F. Mordough, of Brooklyn, took place on Wednesday, the 9th inst. He was a graduate of the Long Island College Hospital, of the class of 1879, and became an *internus* of that institution and one of the first regularly appointed ambulance surgeons of the city. He was well known in official and life insurance circles, but had not been active in practice during the past five years. He had been failing for nearly two years, from tubercular phthisis, on account of which he had lately been obliged to resort to one of the county hospitals for treatment.

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THE PAN-AMERICAN MEDICAL CONGRESS.

THE announcements that we have published from time to time as to the organization of the congress and of its sections, together with the programmes of the sections, make it reasonably certain that the scientific success of the meeting is now assured. In consequence of the prevailing financial stringency, the attendance from the United States may perhaps not be as large as it would otherwise have been. This makes it all the more important that those gentlemen who have accepted official connection with the congress should make it a point to attend. If they all come, or even a large proportion of them, we shall have, numerically, a very successful congress. All the countries concerned, practically, have appointed official delegates in response to the invitation of the President of the United States, who will open the congress in person. A large number of the colonies and a great many municipalities also have appointed delegates, as well as the medical organizations throughout Latin America.

The Governors of nearly all the States of the Union have appointed delegates to represent the sanitary interests of their respective States. These delegates number nearly three hundred in the aggregate. It will be seen from this that special interest is centering in the Sections in Marine Hygiene and Quarantine and in Hygiene, Climatology, and Demography, in charge respectively of Surgeon-General Wyman of the Marine-Hospital Service, and Medical Director Gihon of the navy. The occurrence of cholera in the East and the perennial prevalence of yellow fever in the South give particular importance to the proceedings of these sections at this particular time.

THE MALIGNANT TENDENCY OF CHRONIC MAMMARY TUMORS.

DR. W. HENRY BENNETT, of St. George's Hospital, has written in the *Lancet* for April 29th concerning the tendency of apparently innocent tumors of the breast to take on a malignant character. He recites his experience in three cases and emphasizes the teaching of many generations of surgeons that the path of safety lies alone in an early removal. There are probably few families in the land that have not had an experience of the dangers of delay in the acceptance of the surgeon's recommendation to free a patient from the perils of a chronic and so-called benign growth of the mammary gland.

One of Dr. Bennett's patients had a lump in the breast that was quiescent seven years. She discovered the hardness by accident, and, as is the custom with very many patients, kept

the knowledge of it to herself for a long while. There was no increase of size, and there was no discomfort, but she was advised by her physician, to whom she ultimately went for advice, that the proper treatment was removal at once, or at least as soon as any inclination toward increase was observed. After about three years the woman was confined. The swelling then became sensitive, but no marked increase took place until three years later. All this time she continued reluctant to have any surgical interference. Finally Dr. Bennett was consulted, and the urgency of the situation was found to require immediate operation.

Upon removal, the tumor was found to be within a well-defined capsule, and only attached to the gland at a single point. The external parts of the tumor were clearly an adenofibroma, but in its center lay a rounded mass of semi-gelatinous material, to which the tendency of the once innocent lump to grow was due. This softish central mass was found to be of the nature of a spindle-celled sarcoma, and it was at all points surrounded by a layer of tissue identical in structure with the chronic and quiescent adenofibroma. At one point, however, the sarcoma approached very close to the surface, so that the benign overlying tissue could hardly be discerned. The entire mamma was removed.

The author is decidedly of the opinion that the growth was originally wholly an adenofibroma, and that the sarcomatous element had only recently been superadded. The chronic tumor was a weak point in the breast, and it probably suffered an injury or irritation during the time of suckling, and from that time began to grow heterologously, a conversion to malignancy being the result. If the patient had not been subject to this point of weakness, it may very well be doubted if she would have had the sarcoma; and also if the tumor had been early removed, there would have been no sarcoma. Dr. Bennett opposes the teaching of some of the text-books that chronic mammary tumors have a tendency to shrink and disappear. His observation is that these chronic adenomata or adenofibromata do not shrink, to say nothing of their complete disappearance. Chronic indurations sometimes disappear during lactation, especially after a first parturition, but these are, in his opinion, not the true chronic tumor of the breast. In the latter, the tendency after parturition is invariably in the direction of growth rather than shrinkage, and toward malignancy rather than to remain *in statu quo*. The pathological probability is in favor of the less desirable result, in the case of these chronic and "benign" mammary growths. Their "benign" element is almost invariably compassed in a mere chronicity, longer or shorter, but danger is never absent.

MINOR PARAGRAPHS.

UNCLEANLINESS IN THE MAKING OF ICE-CREAM A SOURCE OF SICKNESS.

DR. WALTER KENT, of the Brooklyn Board of Health, has investigated a number of the ice-cream factories in that city, and has found that uncleanness is the rule rather than the exception in those places. Not a few of them were in filthy

cellars or basements, where there was the foulest of atmospheres. Often he saw that no pretense was made of the cleansing of any of the apparatus except "the immediate vessels" in which the cream was cooked. The floors were seldom cleanly, and seldom in such a condition that they could be cleaned. Suitable doors and windows were often wanting. Rubbish abounded and much mud in the unlighted corners. Although many "hands" are employed, they are generally of the unskilled variety, to whom disorder is congenial, and who are so "driven" that they have no time to clean up. Such filthy conditions, says Dr. Kent, suggest general carelessness in methods of working, and it is more than probable that material which by itself we should avoid is allowed to enter into the production of a food substance. Miscellaneous dirt and filthy surroundings, being favorable to the life of so many of the micro organisms of disease, should be interdicted in connection with ice cream manufacture. Considering also the danger of metallic poisoning from the use of imperfectly cleansed cans, perfect cleansing should be insisted upon by the inspectors of foods. Dr. Kent holds also that the ice-cream is kept on hand too long whenever the demand becomes light by reason of an unexpected change in the weather. This might not be an element of danger if the people who made the cream were careful, but when so much carelessness exists as was discovered and reported by Dr. Kent, it is probable that long keeping is one of the causes of "ice-cream poisoning." No examinations were made for tyrotoxin by Dr. Kent in the recent cases in Brooklyn, for the reason that the specimens brought to him were not in a sufficiently fresh condition.

PUDIC NEURECTOMY AS A REMEDY FOR MASTURBATION.

DR. J. S. EASTMAN publishes in the *Medical News* for August 12th the history of a patient, aged twenty-six, who had been a confirmed masturbator since her sixth year. Coition was without satisfaction and caused her pain. She had run the gamut of internal medication, suturing of the labia majora, electrocauterization of the parts, oophorectomy, and clitoridectomy, without relief to her nervous symptoms or to her desire for masturbation. Dr. Eastman, finding one side of the vulva more sensitive than the other, thought that a local paralysis would be desirable. He cut down upon the pudic nerve on the left side, and, finding it hypertrophied, dissected and removed a portion about three inches long. The wound healed promptly, the patient gained in weight, her symptoms disappeared, and a year and a half after the neurectomy she was still free from her vice of masturbation.

THE NATURE OF THE PHENOMENA OF HYPNOTISM.

At the last annual meeting of the British Medical Association a report presented by the Committee on Hypnotism was referred back to it for further examination and report. The *British Medical Journal* for July 29th publishes a résumé of the extended report of the committee, in which it is stated that the committee has satisfied itself of the genuineness of the hypnotic state, though no phenomena observed lent support to the theory of "animal magnetism." The test experiments showed that the condition was attended by mental and physical phenomena that differed widely in different cases. Among the mental phenomena are altered consciousness; temporary limitation of will-power; increased receptivity of suggestion from without, sometimes to the extent of producing passing delusions, illusions, and hallucinations; an exalted condition of the attention; and methypnotic suggestions. Among the physical phenomena are vascular changes (such as flushing

of the face and altered pulse-rate); deepening of the respirations; increased frequency of deglutition; slight muscular tremors; inability to control suggested movements; altered muscular sense; anæsthesia; modified power of muscular contraction; catalepsy; and often intense rigidity. The committee suggests that the term hypnotism is misleading, inasmuch as sleep, as ordinarily understood, is not necessarily present. It concludes that as a therapeutic agent hypnotism is frequently effective in relieving pain, procuring sleep, and alleviating many functional ailments. As to its permanent efficacy in the treatment of drunkenness, the evidence is encouraging but not conclusive. The therapeutic employment of hypnotism should be confined to qualified medical men. Dangers in the use of hypnotism may arise from want of knowledge, from carelessness or intentional abuse, or from the too frequent repetition of suggestions in unsuitable cases. Legal restrictions should prohibit the public exhibition of hypnotic phenomena.

THE ILL EFFECTS OF PHENAZONE, ACETANILIDE, AND PHENACETINE.

The *British Medical Journal* for July 29th publishes the report of a committee giving the results of an inquiry into the frequency and the importance of the ill effects alleged to attend the use of phenazone (antipyrine), acetanilide, and phenacetine as antipyretic and analgesic agents. The committee concludes that the frequency and importance of these ill effects have been considerably exaggerated. With due care, especially as regards the initial dosage, ill effects other than those connected with idiosyncrasy are extremely infrequent, of little or no importance, and not of such a character as to limit the usefulness of the drugs in any material way. This conclusion does not so fully apply to acetanilide, the action of which has frequently been followed by ill effects, though in the majority of such cases the dosage employed was too large.

HYSTERICAL AMAUROSIS CURED BY SUGGESTION.

DR. J. J. CHISOLM reports in the *Medical News* for August 12th the case of a patient in whom positive mental impressions promptly cured a case of hysterical blindness. She was a girl seventeen years old, who had blindness in one eye suddenly come on while she was at school. By careful examination it was determined that she was not blind, and she was given some pills that she was told would cure her in exactly three days. She was to report each day, at the same hour, at the physician's office, and on the third day she said she could not yet see. Looking at his watch, the physician said there was yet five minutes to wait for returning vision, and before the lapse of that period her vision returned. Another illustration of the "faith cure."

THE NORTH AMERICAN PRACTITIONER.

DR. JOHN H. HOLLISTER has been appointed to the editorship of that journal. He is well known among the medical editors of the country as having been the conductor of the *Journal of the American Medical Association*. He was the immediate predecessor of Dr. Culbertson, whose two years' service was closed this year by resignation.

HYPNOTISM.

The British Medical Association's special committee on hypnotism has made public a portion of the results of its investigation. It affirms the genuineness of the potency of hyp-

notism, and the necessity for the safeguarding of its employment. The use of hypnotic sleep should be restricted to physicians, and these should only exercise it upon female patients when the latter are in the presence of relatives. Hypnotism has been found serviceable in the relief of pain and of insomnia. Regarding its use in narcotic addiction or alcoholism, the case is still open for proof; it is not certain that it can be so used as to effect a cure.

A PECULIAR CASE OF SNEEZING CURED WITH ARSENIC.

In the July number of the *Calcutta Medical Reporter* Mr. D. Robertson, of the Government House Dispensary, reports the case of a Eurasian, twenty-two years old, who was suffering with distressing fits of sneezing, which came on every morning when he washed his face. The application of water to other parts of the body or to the face at other times of the day did not produce it. The morning seizures came on immediately on applying the water, whether hot or cold. The use of arsenic, in the form of Fowler's solution, five minims three times a day, gradually effected a cure.

TYPHUS FEVER AT CONEY ISLAND.

A MAN, employed at the Manhattan Beach Hotel, was recently found to be suffering from typhus fever. He was taken to the hospital on North Brothers Island. The period of his employment at the seaside dates back nearly a month, before which time, it is alleged, he was a resident of a country place in Pennsylvania, the name of which is not reported. The man's duties did not bring him into contact with the patrons of the hotel.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 15, 1893:

DISEASES.	Week ending Aug. 8.		Week ending Aug. 15.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	1	0
Typhoid fever.....	27	4	30	3
Scarlet fever.....	42	6	43	1
Cerebro-spinal meningitis.....	10	7	0	0
Measles.....	161	9	124	4
Diphtheria.....	94	19	100	30
Small-pox.....	5	0	1	1

The Pan-American Medical Congress.—The provisional programmes are as follows:

Section in General Medicine.—Paper by Manuel Carmona y Valle, M. D., City of Mexico, Mexico (neither title nor abstract furnished); Formas del Impuladismo i Medico de reconvertes, by Francisco A. Risquez, Caracas, Venezuela (abstract); paper by E. L. Shurley, M. D., Detroit (neither title nor abstract furnished); paper by J. C. Wilson, M. D., Philadelphia (neither title nor abstract furnished); paper by Charles G. Stockton, M. D., Buffalo (neither title nor abstract furnished); paper by T. Peyre Porcher, M. D., Charleston (neither title nor abstract furnished); paper by J. H. Musser, M. D., Philadelphia (neither title nor abstract furnished); paper by George Dock, M. D., Ann Arbor (neither title nor abstract furnished); Cold Steel as an Antirheumatic, by W. K. Vance, M. D., Bristol, Tenn. (abstract); Cholera Asiatica—1892, by J. D. Burch, M. D., Aurora, Texas (abstract); Facts in Stethoscopic Percussion, by Henry Sewall, M. D., Denver, Col. (abstract); paper by W. C. Christopher, M. D., Chicago (neither title nor abstract furnished); A Study of Some Cases of Chronic Diabetes, by N. S. Davis, Jr., M. D., Chicago (abstract); paper by C. S. Bond, M. D., Richmond, Ind. (neither title nor abstract furnished); Typhoid, by W. C. Dabney, M. D., Uni-

versity of Virginia, Va. (abstract); A Case of Acromegalia in a Giant, by Woods Hutchinson, M. D., Des Moines, Iowa (abstract); paper by D. W. Prentiss, M. D., Washington, D. C. (neither title nor abstract furnished); paper by R. L. Miranda, M. D., New York (neither title nor abstract furnished); paper by William Osler, M. D., Baltimore (neither title nor abstract furnished); The Value of Rest as a Therapeutic Agent in Chronic Pulmonary Tuberculosis, by Carl von Ruck, M. D., Asheville, N. C. (abstract); A New Anaerobic Bacillus of Malignant Edema, by F. G. Noy, M. D., Ann Arbor (abstract); Progressive Pernicious Anemia, by Judson Daland, M. D., Philadelphia (abstract); On the Occurrence of a Form of Chronic Bright's Disease other than Typical Fibroid Kidney without Albuminuria, by D. D. Stewart, M. D., Philadelphia (abstract); De la Buba, by Dr. Luis Razetti and Dr. N. Guardia, Caracas, Venezuela (abstract); La folie chez le nègre, by J. B. Da Lacerda, M. D., Rio de Janeiro (abstract); La cause de la fièvre jaune, by J. B. Da Lacerda, M. D., Rio de Janeiro (abstract); A New Disease of the West Indies, by Cuthbert Brown, M. D., Barbados (abstract); The Bacteriology of Dengue Fever, by J. W. McLaughlin, M. D., Austin, Texas (abstract); The Culture of Anaerobic Bacteria, by F. G. Noy, M. D., Ann Arbor (abstract); Consideraciones sobre dos Casos de Anemia por Ankylostoma duodenale observados en el Hospital Victor Manuel de Lima, by J. B. Agnoli, M. D., Lima, Peru (abstract); A Contribution to the Study of Prolonged Intermittent Fever, by David Lobo, M. D., Caracas, Venezuela (abstract); The Nature of the Germicidal Constituent of the Blood Serum, by Victor C. Vaughn, M. D., Ann Arbor (abstract); On Vaso-motor Ataxia, by J. Solis-Cohen, M. D., Philadelphia (abstract); Recent Experiences in Croupous Pneumonia, with Observations on Treatment by Subcutaneous Injections of Saline Solutions, by R. F. Cunningham, M. D., Birmingham, Ala. (abstract not furnished); Cholera, its Diagnosis, Prognosis, and Treatment, by J. M. Hurley, M. D., San Bernardino, California (abstract not furnished); Colera Morbo Asiatico, by Santiago Hernandez, M. D., Santa Clara, Cuba (abstract); The Importance of Eliminating Pelvic Diseases in General Diagnosis, by Mary H. McLean, St. Louis (abstract); Clinical Notes on Amebic Dysentery, by H. A. West, M. D., Galveston, Texas (abstract); Some American Ideas about Chronic Diarrhea, by Ephraim Cutter, New York (abstract); Tratamento médico del vomito negro, by Segundo Bellver Mateo, Havana (abstract); The Principles of Immunity and Cure in the Infectious Diseases, by Victor C. Vaughn, M. D., Ann Arbor (formal address); Forced Respiration—Fell Method—A Plea for its General Adoption in Hospital and Naval Practice, by George E. Fell, Buffalo, (abstract).

Section in General Surgery.—The Treatment of Pott's Disease of the Spine, by A. B. Judson, M. D., New York (abstract); The Probable Cause of Limp in the First and Second Stages of Hip-joint Disease, by Harry M. Sherman, M. D., San Francisco (abstract); The Mechanical Treatment of Osteo-arthritis of the Knee, by Henry Ling Taylor, M. D., New York (abstract); paper by Dr. Bernardo Herrera, Caracas, Venezuela (neither title nor abstract furnished); paper by Dr. Juan M. Escolana, Caracas, Venezuela (neither title nor abstract furnished); Ununited Fracture, by Lilwellly Elliot, M. D., Washington, D. C. (abstract); Some Points in the Surgical Treatment of Appendicitis, by Augustus P. Clarke, M. D., Cambridge, Mass. (abstract); A Brief Splint Technology for Surgeons, by Edward A. Tracy, M. D., Boston (abstract); Reconstructive Surgery, by Thomas G. Maghee, M. D., Rawlins, Wyo. (abstract); Urethral Polypus in the Male, by R. Menocal, M. D., Havana (abstract); Simplicity in Surgery, by Robert W. Johnson, M. D., Baltimore (abstract); A Report of Four Cases of Brain Surgery, by Andrew J. McCosh, M. D., New York (abstract); Soudas y Bujras Gecacas del Dr. Castano, by Dr. Alberto Castano, Buenos Ayres, Argentine Republic (abstract and specimens); paper by Ignacio Placencia, M. D., Havana (title and abstract in hands of Literary Bureau); paper by Ignacio Placencia, M. D., Havana (title and abstract in hands of Literary Bureau); Tratamiento Quirúrgico de la Fiebre Amarilla, by Segundo B. Mateo, M. D., Havana (abstract); In what Class of Cases is Drainage required? by H. O. Marcy, M. D., Boston (abstract not furnished); Causation, Pathology, and Treatment of Carbuncle, by David W. Graham, M. D., Chicago (abstract not furnished); paper by Dr. Martín Herrera, Caracas, Venezuela (neither title nor abstract furnished); paper by Dr. Miguel A. Leco, Caracas, Venezuela (neither title nor abstract furnished); Improved

Long Traction Hip Splint with Proper Method of applying Counter-extension, by Henry Ling Taylor, M. D., New York (demonstration); Improved Apparatus for Pott's Disease, by Henry Ling Taylor, M. D., New York (demonstration); Apparatus for the Correction of Talipes Equino-varus and for the Retention of the Corrected Foot, by Henry Ling Taylor, M. D., New York (demonstration); Practical Orthopaedics, by Noble Smith, London, England (abstract not furnished); Observations on the Rotary Lateral Curvature of the Spine, with Special Reference to Etiology and Treatment, by Jacob Teschner, M. D., New York (abstract); Recumbence in the Treatment of Pott's Disease, by John C. Schapps, M. D., Brooklyn (abstract); Causes contributing to Failure in the Treatment of Hip-joint Disease, by A. M. Phelps, M. D., New York (abstract); Some Thomas's Splints, with Demonstrations of Principles, by John Ridlon, M. D., Chicago (demonstration); Orthopaedic Work done at the Vanderbilt Clinic of New York, from January, 1889, to June, 1893, by John Ridlon, M. D., Chicago (abstract not furnished); A Case of Acute Arthritis of the Hip of Infants, with some Remarks on the Etiology of the Affection, by Augustus Thorndyke, M. D., Boston (abstract); The Orthopaedic Treatment of Infantile Paralysis, by L. A. Weigel, M. D., Rochester, N. Y. (abstract); Gymnastic Apparatus for Scoliosis, by L. A. Weigel, M. D., Rochester (abstract not furnished); Practical Points in the Treatment of Hip Disease, by A. B. Judson, M. D., New York (abstract); The Technique of the Plaster Jacket, by Reginald H. Sayre, M. D., New York (demonstration); Club-hand, by Reginald H. Sayre, M. D., New York; Gastrostomy for the Relief of Esophageal Stricture, by Ernest Laplace, M. D., Philadelphia.

Section in Military Medicine and Surgery.—Laparotomy in Gunshot Wounds, by P. S. Conner, M. D., Cincinnati (abstract not furnished); paper by Hunter McGuire, M. D., Richmond (neither title nor abstract furnished); paper by Colonel Joseph R. Smith, Medical Director, Headquarters, Department of California, San Francisco, Cal. (neither title nor abstract furnished); paper by W. A. Hammond, M. D., Washington, D. C. (neither title nor abstract furnished); Are Projectiles from Portable Hand Weapons Sterilized by the Act of Firing? Can a Septic Bullet infect a Gunshot Wound? by Captain Louis A. La Garde, Chicago (abstract); The Place of Selection and Methods of Amputation, with Reference to the most Useful Artificial Appliances, by Stephen Smith, M. D., New York (abstract not furnished); paper by Brevet Lieutenant-Colonel A. A. Woodhull, Surgeon, U. S. A., Hot Springs, Ark. (title and abstract in hands of Literary Bureau); Personal Experience in the Results of Good and Bad Sanitation in the Confederate Army, by Bedford Brown, M. D., Alexandria, Va. (abstract); The Causes and Origin of Continued Fevers in Naval Service, by C. A. Siegfried, M. D., Surgeon, U. S. Navy, Newport, R. I. (abstract); paper by N. Senn, M. D., Chicago (neither title nor abstract furnished); paper by John Homans, M. D., Boston (neither title nor abstract furnished); Apresos de Campamento de Uso en Cuba por los Médicos Militares, by Dr. Felix Estrada y Cotoyra, Havana (abstract); Hospital Corps Drill by Detachment, under the command of Major Van R. Hoff, Surgeon, U. S. A.; Exhibition of a Field Hospital Complete, with Equipment now in use in the United States Army; First Aid to the Wounded and Transportation of the Wounded from the Battlefield and Field Hospitals (open discussion); Visit to the Army Medical Museum (a) Inspection of Collection; (b) Inspection of Library of the Surgeon General's Office.

Section in Obstetrics.—Address by Giles S. Mitchell, M. D., Executive President, Cincinnati; Maternity Hospitals and their Results, by Joseph Price, M. D., Philadelphia (abstract not furnished); The Axis-Traction Principle in Obstetrics, by Joseph Hoffman, M. D., Philadelphia (abstract not furnished); The Care of the Pregnant Woman in the First Half of Utero-gestation, by W. H. Baker, M. D., Boston (abstract not furnished); The Hemorrhages of Pregnancy and their Management, by J. O. Polak, M. D., Brooklyn (abstract); A Study of Placenta Previa, especially the Causes of the Hemorrhages, by Sarah Hackett Stevenson, M. D., Chicago (neither title nor abstract furnished); The Management of the Placenta in Operations for Ectopic Gestation, by D. Tod Gilliam, M. D., Columbus, O. (abstract); The State of Obstetrics in General Practice, by Eliza H. Root, M. D., Chicago (abstract); The Mechanism of Labor, by J. C. Rutherford, M. D., Providence, R. I. (ab-

tract); The Induction of Premature Labor, by J. H. W. Chestnut, M. D., Philadelphia (abstract); Aids to Easy Parturition, by A. J. T. Sannier, M. D., Chicago (abstract); Occipito-posterior Positions and their Management, by F. C. Fergusson, M. D., Indianapolis (neither title nor abstract received); The Therapeutic Application of Chloroform in Labor, by J. N. Upshur, M. D., Richmond (abstract); The Management of Some Cases of Difficult Labor, by W. H. Taylor, M. D., Cincinnati (abstract not furnished); Forceps Delivery, by James Campbell, M. D., Hartford, Conn. (abstract not furnished); The More Frequent Use of Forceps in the Multipara, by Lyman A. Berger, M. D., Kansas City, Mo. (abstract not furnished); The Use and Abuse of the Forceps, by W. Frank Haehnlen, M. D., Philadelphia (abstract not furnished); Symphysiotomy, by Henri Jacques Garrigues, M. D., New York (abstract); What has Surgery done for Modern Obstetrics? by Thomas Opie, M. D., Baltimore (abstract not furnished); Recent Surgical Advances and their Relation to Conservative Obstetrics, by W. Reynolds Wilson, M. D., Philadelphia (abstract); Puerperal Peri-uterine Inflammations, their Pathology and Treatment, by J. Foster Scott, M. D., Washington, D. C. (abstract not furnished); The Pathology and Treatment of Puerperal Infection, by Edward A. Ayers, M. D., New York (abstract); Infection of the Kidneys after Labor, by Barton Cooke Hirst, M. D., Philadelphia (abstract not furnished); Puerperal Eclampsia, by J. G. Cecil, M. D., Louisville (abstract not furnished); Puerperal Eclampsia, by Theophilus Parvin, M. D., Philadelphia (abstract not furnished); Induction of Labor and Accouchement Forcé in the Preventive Treatment of Eclampsia, by Charles Jewett, M. D., Brooklyn (abstract); Contribución al Estudio de la Septicemia Puerperal, by Dr. Antonia José Amadeo, Maunabo, Puerto Rico (abstract); A Study of Dystocia, by Dr. Salvador Garciadiego, Guadalajara, Mexico (abstract); A Method of Performing Rapid Manual Dilatation of the Os Uteri, and its Advantages in the Treatment of Placenta Prævia, by Philander A. Harris, M. D., Paterson, N. J. (abstract); Nota sobre la Expresión de la Vegiga en la Retención de Orina Post Partum, by Dr. Sebastian Cuervo Serrano, Espiritu Santo, Cuba (abstract); The Application of Graphics to the Fetal Heart Sounds, by Hugh Hamilton, M. D., Harrisburg, Pa. (abstract); Compresión Uterina, by Dr. José María de Ita, Puebla, Mexico (abstract).

Section in Gynecology and Abdominal Surgery.—The Value of Certain Methods of Surgical Treatment for Chronic Proctiditis of the Uterus, by Augustus P. Clarke, M. D., Cambridge, Mass. (abstract); Hysterectomy for Fibroids, Methods and Results, by Joseph Price, M. D., Philadelphia (abstract not furnished); The Treatment of Suppurative Disease of the Pelvic Organs, by H. J. Boldt, M. D., New York (abstract); The Significance of Endometritis and the Necessity for its Early Cure, by Joseph Tabor Johnson, M. D., Washington, D. C. (abstract); An Inquiry into the Etiology of Mental Disturbances following Operations upon the Pelvic Organs of Women, by George H. Rohé, M. D., Catonsville, Md. (abstract); Report of One Hundred Operations done for Serious Structural Disease of the Abdominal and Pelvic Organs in Women, by I. S. Stone, M. D., Washington, D. C. (abstract); Two Cases of Ectopic Gestation with Unusual Complications, Laparotomy and Recovery, by T. H. Hawkins, M. D., Denver, Col. (abstract not furnished); Ought Craniotomy to be Abolished? by W. H. Myers, M. D., Fort Wayne, Ind. (abstract not furnished); What I have Learned in the Surgery of the Gall-bladder, by Joseph Eastman, M. D., Indianapolis (abstract not furnished); Gynecological Treatment in Sterile Women—the Cause and Treatment, by De Saussure Ford, M. D., Augusta, Ga. (abstract); Drainage of Ovarian Cysts where the Adhesions are such that it is Impossible to remove the Sac, by A. Vander Veer, M. D., Albany (abstract); paper by H. A. Kelly, M. D., Baltimore (neither title nor abstract furnished); The Relation of Urinary Conditions to Gynecological Surgery, by Charles P. Noble, M. D., Philadelphia (abstract); Shortening of the Round Ligaments in Retro-position of the Uterus, by T. Johnson Alloway, M. D., Montreal (abstract); Total Extirpation of the Fibroid Uterus, by Florian Krug, M. D., New York (abstract not furnished); paper by J. Algernon Temple, M. D., Toronto (neither title nor abstract furnished); Vaginal Hysterectomy, by E. E. Montgomery, M. D., Philadelphia (abstract); The Surgical Treatment of Tubercular Peritonitis, by M. B. Ward, M. D., Topeka, Kan. (abstract); paper by B. E. Hadra, M. D., Galveston, Texas (neither title nor ab-

stract furnished); A Last Resort in the Operative Treatment of Hernia, by Robert T. Morris, M. D., New York (abstract not furnished); When Operation is Refused, what then? by George R. Dean, M. D., Spartanburgh, S. C. (abstract); paper by W. E. B. Davis, M. D., Birmingham, Ala. (neither title nor abstract furnished); Perineo-vaginal Restoration, by Edward W. Jenks, M. D., Detroit (abstract); paper by W. Gardner, M. D., Montreal (neither title nor abstract furnished); The Present Status of our Knowledge of the Pathology of Pelvic Inflammation, with Special Reference to the Treatment of Pelvic Abscess, by R. B. Maury, M. D., Memphis, Tenn. (abstract); paper by John R. Haynes, M. D., Los Angeles, Cal. (neither title nor abstract furnished); The Omentum and the Role it plays in Operative Work upon the Abdomen, by James F. W. Ross, M. D., Toronto (abstract not furnished); Hysterectomy: Indications and Technique, by J. M. Baldy, M. D., Philadelphia (abstract); Observations on Total Extirpation of the Uterus for Cancer, Based upon a Personal Experience with Thirty-two Cases, by Charles A. L. Reed, M. D., Cincinnati (abstract not furnished); Ectopic Pregnancy, by Joseph Hoffman, M. D., Philadelphia (abstract not furnished); paper by E. W. Davis, M. D., Philadelphia (neither title nor abstract furnished); After-treatment of Abdominal Section, by L. S. McMurtry, M. D., Louisville (abstract not furnished); The Technique of Total Extirpation of the Fibromatous Uterus, by George M. Edebohls, M. D., New York (abstract); The Intra-uterine Tampon, by Andrew F. Currier, M. D., New York (abstract); A Plea for the Value of Early Diagnosis and Prompt Electrical Treatment of Fibroid Tumors of the Uterus, by G. B. Massey, M. D., Philadelphia (abstract); The Co-ordination of the Muscles closing the Urethra, Vagina, and Rectum, and its Application to the Precise Diagnosis and Surgical Treatment of Injuries to the Pelvic Floor, by A. W. Abbott, M. D., Minneapolis (abstract); Estudio Clínico sobre las Heridas Penetrantes del Abdomen i Pecho, by Dr. Juan Manuel Escalana, Caracas, Venezuela (abstract); Cavernous Angioma of the Uterus (with specimen presented) removed per Hysterectomy Vaginale, by H. J. Boldt, M. D., New York (abstract); The Dorsal Decubitus after Confinements and Miscarriages is the Commonest Cause of Retroversion with Fixation, by A. Laphorne Smith, M. D., Montreal (abstract); Observaciones sobre un Caso de Preñez Extra-uterina (Tubaria Derecha) Operada en el Hospital de San Salvador por el Dr. José Antonio Delgado, by Dr. J. Antonio Delgado, Guatemala City, Guatemala (abstract); Notes pour l'histoire des fibromyomes utérines, by Dr. Nicolas San Juan, City of Mexico, Mexico (abstract); The Results of Vaginal Hysterectomy, by Andrew J. McCosh, M. D., New York (abstract); Apuntamientos para el Estudio Comparativo de la Pelvis Mexicana y Europea, y Consecuencias Prácticas agüeda Lugar la Especial Conformación de la Primera, by Dr. Manuel Gutiérrez y Tomas Noriega, City of Mexico, Mexico (abstract); Analysis and Deduction from my First One Hundred and Ten Laparotomies for Appendicitis, with Report of Experimental Investigation, by J. B. Murphy, M. D., Chicago (abstract); A Study based upon one Hundred Consecutive Cases of Removal of Diseased Uterine Appendages with Two Deaths, by R. Stansbury Sutton, M. D., Allegheny, Pa. (abstract not furnished); Do the Catamenia invariably appear Earlier in Hot than in Cold Climates? by J. H. O'Donnell, Winnipeg, Manitoba (abstract); Cura Radical de las Hernias, by Dr. Luis C. Maglioni, Buenos Ayres, Argentine Republic (abstract); The After-treatment of Coeliotomy Cases, with Special Reference to Shock and Septic Peritonitis, by Eugene Boise, M. D., Grand Rapids, Mich. (abstract); Habits of Posture a Cause of Deformity and Displacement of the Uterus, by Eliza M. Mosher, M. D., New York (abstract).

Section in Therapeutics.—Paper by Edward Randall, M. D., Galveston, Texas (neither title nor abstract furnished); The Treatment of Scarlet Fever by Chloral Hydrate, by James C. Wilson, M. D., Philadelphia (abstract); A Plea for Physiological Remedies, by Simon Baruch, M. D., New York (abstract); Treatment of Chronic Catarrh and Allied Conditions of Lowered Hydrochloric Acidity, by D. D. Stewart, M. D., Philadelphia (abstract); The Physiological Actions of Alcohol, by David Cerna, M. D., Galveston, Texas (abstract); The Treatment of Neurasthenia, with Special Reference to the Best Cure, by F. X. Dercum, M. D., Philadelphia (abstract); The Advantages of Amorphous Phosphorus over the Official Form, by E. I. Richardson, M. D., Philadelphia (abstract); Venesection in the Treatment of Engorgement and Dilatation

of the Right Side of the Heart, by I. E. Atkinson, M. D., Baltimore (abstract); The Use of Nitroglycerin in Arterio-sclerosis, by T. G. Ashton, Philadelphia (abstract); paper by Edw. Martin, M. D., Philadelphia (neither title nor abstract furnished); Formal Address, by Hobart A. Hare, M. D., Executive President, Philadelphia; The Philosophy of Therapeutics, by L. B. Anderson, M. D., Norfolk, Va. (abstract); The Antipyretic Action of Alcohol, by A. B. Simmons, M. D., and R. J. Winn, M. D., Savannah, Ga. (abstract); Some Views regarding the Philosophy of Drug Action, by J. W. McLaughlin, M. D., Austin, Texas (abstract); The Treatment of Leprosy, by Richard H. L. Bibb, M. D., Sattilo, Mexico (abstract not furnished); paper by Fernando Altamirano, M. D., City of Mexico, Mexico (neither title nor abstract furnished); The Clinical Import of Kummys, by J. Mount Bleyer, M. D., New York (abstract); The Treatment of Exophthalmic Goitre, based on Forty-five Consecutive Cases, by A. D. Rockwell, M. D., New York (abstract); Etude sur un moyen d'assurer l'efficacité du copoia dans la médication suppressive de la hémorrhagie uréthrale, by L. T. C. Lamothé, M. D., Port au Prince, Haiti (abstract); Action physiologique de quelques plantes brésiliennes de la famille des Menespermacees, by J. B. Da Lacerda, M. D., Rio de Janeiro (abstract); Une plante convulsivante du Brésil, by J. B. Da Lacerda, M. D., Rio de Janeiro (abstract); The Pathology and Treatment of Gout, by James Tyson, M. D., Philadelphia (abstract); Contribution to the Therapeutics of Yellow Fever, by Pedro Peñuelas, M. D., Havana (abstract); Some Points in the Treatment of Uric-acid Diathesis, by F. E. Stewart, M. D., Watkins, N. Y. (abstract); A Contribution to the Treatment of Diabetes Mellitus, by Solomon Solis-Cohen, M. D., Philadelphia (abstract); The Value of the Bath in some Sthenic Conditions, particularly Typhoid Fever, by Simon Baruch, M. D., New York (abstract); The Indications which should Govern the Employment of the Several Anæsthetics, by H. C. Wood, M. D., Philadelphia (abstract not furnished); Electricity, its Use in Medicine, by F. Schavoir, M. D., Stamford, Conn. (abstract).

Section in Anatomy.—Anomalies of the Larynx as seen by the Specialist, by W. T. Cathell, M. D., Baltimore (abstract); paper by T. Griswold Comstock, M. D., St. Louis (neither title nor abstract furnished); paper by R. B. Gilbert, M. D., Louisville (neither title nor abstract furnished); The Diaphragm, by H. E. McIntire, M. D., Hudson, Wis. (abstract not furnished); A Note on the Occurrence of the Scapulo-clavicular Muscle, by R. S. Moody, M. D., New Haven (abstract); Mallet Finger, by R. T. Morris, M. D., New York (abstract); The Laws of the Growth of the Cell applied to Human Anatomy, by Robert Reyburn, M. D., Washington, D. C. (abstract); paper by R. Winslow, M. D., Baltimore (neither title nor abstract furnished); On the Presence of Linguatula Rhinosia in the United States, by C. W. Stiles, Ph. D., Washington, D. C. (abstract); Nerve Anastomosis, by A. C. Bernays, M. D., St. Louis (abstract not furnished); paper by G. A. Burgham, M. D., Toronto; paper by E. B. Kenner, M. D., St. Louis; paper by T. J. Lee, M. D., Minneapolis; paper by C. S. Minot, M. D., Boston; paper by John C. Munro, M. D., Boston; paper by J. T. Newman, M. D., New Orleans; paper by G. A. Piersol, M. D., Philadelphia; paper by James B. Prichard, M. D., St. Louis (neither titles nor abstracts furnished); A Part of the Anatomy of the Velum Pendulum Palati, by T. F. Rumbold, M. D., San Francisco (abstract); paper by D. F. Rodgers, M. D., Topeka, Kan. (neither title nor abstract furnished); paper by W. R. Stokes, M. D., Baltimore (neither title nor abstract furnished); paper by Prof. A. H. Tuttle, University of Virginia, Va. (neither title nor abstract furnished); The Human Hand, by G. W. West, M. D., Washington, D. C. (abstract not furnished); paper by George W. Wilcox, M. D., Augusta, Ga.; paper by W. P. Wilson, M. D., Philadelphia; paper by Edwin Bentley, M. D., Little Rock, Ark.; paper by Henry C. Boeming, M. D., Philadelphia; paper by Elizabeth R. Bundy, M. D., Philadelphia; paper by E. F. Clapp, M. D., Iowa City; paper by J. W. Hartigan, M. D., Morgantown, W. Va.; paper by William Krauss, M. D., Memphis, Tenn.; paper by Rudolph Matas, M. D., New Orleans; paper by J. W. Perkins, M. D., Kansas City (neither titles nor abstracts furnished); The Surgical Anatomy of the Appendix Vermiformis with some Anatomical Abnormalities Observed, by R. H. Plummer, M. D., San Francisco (abstract not furnished); paper by E. S. Hems, M. D., Lebanon, O. (neither title nor abstract furnished); The Dissecting Room, by E. W. Holmes, M. D., Philadelphia (abstract); The Rela-

tions of the Heart and Lungs to the Anterior Chest wall, as determined by Composite Photographs, by Irving I. Haynes, M. D., New York (abstract); Bone an Organized Substance, by G. F. Koehler, M. D., Portland, Oregon (abstract); Craniometric Measurement of 500 Skulls in Relation to Aural Topographic Anatomy, by E. Alexander Randall, M. D., Philadelphia (abstract); A Case of Supernumerary Nipples, with Remarks upon and Literature of the Subject, by Albert Pick, M. D., Manchester, N. H. (abstract); On the Zona Radiata of the Telostean Ovary, by Jacob Reichard, M. D., Ann Arbor (abstract).

Section in Physiology.—American Physiology—Past, Present, and Future, by Isaac Ott, M. D., Executive President of the Section, Easton, Pa. (formal address); The Pathology of Yellow Fever, by Joseph Jones, M. D., New Orleans (abstract); The Effect of Lesions of Certain Parts of the Brain upon the Heat Processes, by E. T. Reichert, M. D., Philadelphia (abstract); Heat Mechanism, by Dr. Bartolemeo Baculo, Naples, Italy (abstract not furnished); The Globulocidal Action of Blood Serum, by W. S. Carter, M. D., Philadelphia (abstract); On the Absorption of Iron in the Animal Body, by A. B. MacAllum, M. D., Toronto (abstract); Sur les troubles fonctionnelles dues à la chaleur, by Dr. J. B. Da Lacerda, Rio de Janeiro (abstract); The Automatism of Nerve Centers, by Prof. Samuel Wolfe, Philadelphia (abstract); On the Proteolysis of Crystallized Phyto-globulin or Vitellin, by Prof. R. H. Chittenden, New Haven (abstract); The Innervation of the Venæ Portæ, by F. Mall, M. D., Chicago (abstract); The Physiological Bases of Therapeutic Action—An Experimental Inquiry, by Thomas J. Mays, M. D., Philadelphia (abstract); Some Observations on the Normal Growth and Muscular Development of the Human Body under Systematized Exercises, by Henry G. Beyer, M. D., Annapolis (abstract); "Conversazione" on Methods of Teaching and Demonstrating Physiological Subjects, by W. G. Thompson, M. D., New York (abstract); Hibernation and Allied States in Animals, by Wesley Mills, M. D., Montreal (abstract); Sobre el Numero de los Globulos Rojos, by Dr. José G. Hernandez, Caracas, Venezuela (abstract); La force musculaire chez les Indiens, by Dr. J. B. Da Lacerda, Rio de Janeiro (abstract); On the Respiratory Center in the Medulla Oblongata, by Prof. Dr. J. Gad, Berlin, Germany (abstract); The Analysis of the Gastric Juice for Some Diseases of the Stomach, by Hugh Hamilton, M. D., Harrisburg, Pa. (abstract); A Microscopical Study of the Living Nerve Cell during Stimulation, by C. F. Hodge, M. D., Hickory Ridge, Tenn. (abstract); Changes in Ganglion Cells from Birth to Death from Old Age, by C. F. Hodge, M. D., Hickory Ridge, Tenn. (abstract); paper, to follow Dr. E. T. Reichert's on The Effect of Lesions of Certain Parts of the Brain upon the Heat Processes, by Isaac Ott, M. D., Easton, Pa. (abstract).

Section in Diseases of Children.—The Most Successful Method of Treating Croup, by J. O'Dwyer, M. D., New York city (abstract not furnished); The Teaching of Hygiene in Colleges and Public Schools, by F. Forchheimer, M. D., Cincinnati (abstract not furnished); Clinical Aspects of Infant Feeding, by E. P. Davis, M. D., Philadelphia (abstract not furnished); Clinical Notes of Eruptive Fevers in Southern California, by W. A. Edwards, M. D., San Diego, Cal. (abstract not furnished); Infant Feeding, by T. M. Rotch, M. D., Boston (abstract not furnished); The Time and Mode of the Introduction of the Exotic Diseases of Children into America, by J. Lewis Smith, M. D., New York (abstract not furnished); Physical Training of Public School Children, by J. Gardner Smith, M. D., New York (abstract); Palmus, by L. C. Gray, New York (abstract not furnished); Enterocolitis in Intestinal Diseases of Children, by E. E. Graham, M. D., Philadelphia (abstract not furnished); The Bacteriological Diagnosis of Diphtheria, by H. C. Ernst, M. D., Boston (abstract); Aphasia in Children, by F. Peterson, M. D., New York (abstract not furnished); On Milk (no definite title), by Henry D. Chapin, M. D., New York (abstract not furnished); The Race Factor in Gastro-intestinal Disease, by J. W. Byers, M. D., Charlotte, N. C. (abstract); The Treatment of Empyema in Early Life, by A. Brothers, M. D., New York (abstract); A Contribution to the Knowledge of Acute Primitive Enterocolitis during Low Infancy, by Dr. Joaquin L. Duénas, Havana (abstract); paper by J. B. Deaver, M. D., Philadelphia (neither title nor abstract furnished); The Production of Cow's Milk designed for Infant Feeding, by Henry L. Coit, M. D., Newark, N. J. (abstract); The Proper Mode of Preventing and Treating Diphtheria, based on Recent Discoveries relating to its Etiology and Pathology, by J. Lewis Smith,

M. D., New York (abstract not furnished); The Normal Præcordia in Infancy and Childhood, by H. B. Whitney, M. D., Denver (abstract); Intestinal Parasites Observed in the Island of Puerto Rico, by Dr. Antonia Amadeo, Manabó, Puerto Rico (abstract); Immediate Percussion among Children, by Dr. Olinto, Porto Alegre, Brazil (abstract not furnished); The Feeding of Children in Cuba during Infancy, by Dr. Joaquín L. Dueñas, Havana (abstract); Pertussis as it exists in the Rocky Mountains, by John M. Keating, M. D., Colorado Springs (abstract not furnished); Types of Gastro-intestinal Disease Prevalent in New York, by Floyd M. Crandall, M. D., New York (abstract); The Insane Disorders of Childhood, by J. Madison Taylor, M. D., Philadelphia (abstract); Cirrhosis of the Liver in Children, by W. A. Edwards, M. D., San Diego, Cal. (abstract); The Artificial Feeding of Children in Mexico, by Dr. J. Ramon Icaza, City of Mexico, Mexico (abstract).

Section in Pathology.—Abscess of the Liver, by James E. Reeves, M. D., Chattanooga, Tenn. (abstract not furnished); Notes on Three Years' Work in the Pathological Laboratory of the Charity Hospital of New Orleans, by Henry Dickson Bruns, M. D., New Orleans (abstract); paper by W. Henry Welch, M. D., Baltimore (neither title nor abstract furnished); paper by W. T. Councilman, M. D., Boston (neither title nor abstract furnished); Influenza, by Ramon Gutiérrez, New York (abstract); A Bacteriological Observation on the Waters of the Harbor of Havana, by Dr. Acosta y Grande, Havana (abstract not furnished); The Pathological Histology of Yellow Fever, by Dr. Acosta y Grande, Havana (abstract not furnished); Investigations concerning Malaria, by Dr. Coronado y Madau, Havana (abstract not furnished); Bacteriological Studies in Havana, by Dr. Davalos, Havana (abstract not furnished); Investigations upon the Carbuncle in Cuba, by Dr. Coronado, Havana (abstract not furnished); Observations on the Anti-rabic Treatment of Pasteur, by Dr. Acosta, Havana (abstract); The Ætiology of Cancer, with Special Regard to the Protozoa Parasites of Cancer, by Allen J. Smith, M. D., Galveston, Texas (abstract); Contribution to the Study of Cancer, by Dr. Wernicke, Buenos Ayres, Argentine Republic (abstract not furnished); The Medical Geography of Porto Rico, by Dr. A. J. Amadeo, Maunabo, Porto Rico (abstract); The Yellow Fever of the Creoles and the Negroes, by Dr. A. J. Amadeo, Maunabo, Porto Rico (abstract); paper by E. O. Shakespeare, M. D., Philadelphia (neither title nor abstract furnished); paper on Yellow Fever (definite title not yet furnished), by Dr. C. Heineman, Vera Cruz, Mexico (abstract not furnished); Theories of Inflammation, by Dr. José Torres Matos, Havana (abstract); L'État de hyperexcitabilité du nerf phrénique dans le bérberi, by Dr. J. B. Da Lacerda, Rio de Janeiro (abstract); Paludismo, by Dr. Antonio José Amadeo, Maunabo, Porto Rico (abstract); Pathology at the Institution for Feeble-minded Children at Elwyn, Pa., by Henry W. Cattell, M. D., Philadelphia (abstract); The Epithelio-genetic Origin of Cancer, by Joseph McFarland, M. D., Philadelphia (abstract); Cancer, by Dr. Wernicke, Buenos Ayres, Argentine Republic (formal discussion, with Prof. Allen J. Smith as co-referee); Cancer, by Joshua M. Van Cott, M. D., Brooklyn (abstract not furnished); Cancer, by Joseph McFarland, M. D., Philadelphia (formal discussion); Yellow Fever, by Dr. Acosta y Grande, Havana (formal discussion, with Dr. A. J. Amadeo, of Porto Rico, as co-referee); Practical Demonstration of the Methods in Pathological Histology, by James E. Reeve, M. D., Chattanooga, Tenn. (demonstration); Practical Demonstration of the Methods in Photography applied to Pathology, by W. M. Gray, M. D., Army Medical Museum, Washington, D. C. (demonstration); Practical Demonstration of Methods in Bacteriology, by J. J. Kinyoun, M. D., U. S. Marine-Hospital Service, Washington, D. C. (demonstration); The Third Blood Corpuscle as a Pathological Product, by R. L. Watkins, M. D., New York (abstract not furnished); On Cholera, by Herman M. Biggs, M. D., New York (abstract not furnished); The Pathology of Pelvic Inflammatory Trouble, by Joseph Price, M. D., Philadelphia (abstract not furnished); paper by G. F. H. Nuttall, M. D., Baltimore (neither title nor abstract furnished); paper by W. Hughes, M. D., Philadelphia (neither title nor abstract furnished); paper by W. J. Carter, M. D., Philadelphia (neither title nor abstract furnished).

Section in Ophthalmology.—Formal address by Julian J. Chisolm, M. D., Executive President of the Section, Baltimore; Skin Grafting for Malignancy of the Eyelids and Orbit, by F. B. Tiffany, M. D., Kansas City (abstract); Further Experiences in Graduated Tenotomy, by Charles

Herman Thomas, M. D., Philadelphia (abstract in hands of Literary Bureau); A Case of Cysticercus of the Vitreous, by William Cheatham, M. D., Louisville (abstract not furnished); Spontaneous Replacement of a Detached Retina, by James Wallace, M. D., Philadelphia (abstract); A Clinical Study of Heterophoria, by Hiram Woods, M. D., Baltimore (abstract); Treatment of Six Cases of Traumatic Irido-cyclitis complicated with Cataract, by Robert L. Randolph, M. D., Baltimore (abstract); Homochronous Hereditary Optic-nerve Atrophy extending through Six Generations, by G. M. Gould, M. D., Philadelphia (abstract); Further Studies of the Cycloplegic Value of Homatropine and Cocaine Discs as a Substitute for Atropine, Duboisine, and Hyoscine, by Casey A. Wood, M. D., Chicago (abstract); An Analysis of Fifty Cases of Convergent Strabismus, by H. F. Hansell, M. D., Philadelphia (abstract); Gouty and Rheumatic Affections of the Eye, by W. Oliver Moore, M. D., New York (abstract not furnished); Some Experiences in Hemorrhagic Glaucoma, its Prognosis and Treatment, by S. D. Risley, M. D., Philadelphia (abstract); Suppurative Processes of the Vitreous, by J. F. Fulton, M. D., St. Paul (abstract not furnished); The Local Application of Bichloride of Mercury in Deep-seated Diseases of the Eye, by W. F. Mitendorf, M. D., New York (abstract); A Clinical Study of the Visual Field in Hemianopsia, by C. A. Oliver, M. D., Philadelphia (abstract); Glaucoma from Traumatic Causes, by Dr. E. Lopez, Havana (abstract not furnished); The Nomenclature of Blepharitis, by Dudley S. Reynolds, M. D., Louisville (abstract not furnished); A Comparison of the Eye of White with Colored Pupils in the Public Schools of Washington City, by E. O. Belt, M. D., Washington, D. C. (abstract); The Hygienic and Scientific Value of Examinations of the Eyes in the Schools, by B. Alexander Randall, M. D., Philadelphia (abstract); On Croupous Iritis, by Adolf Alt, M. D., St. Louis (abstract); Tratamiento del Triquiasis y Distiquiasis por Adelantamiento del Párpado Superior, by Dr. J. Santos Fernandez, Havana (abstract); Remarks on the Treatment of Heterophoria, by E. J. Gardiner, M. D., Chicago (abstract); Extra-ocular Melanosarcoma of the Orbit, by S. C. Ayres, M. D., Cincinnati (abstract); Orbital Tumors, by Walter B. Johnson, M. D., Paterson, N. J. (abstract); The Treatment of Opacities of the Vitreous Humor by Hypodermic Injections of Pilocarpine, by T. J. Tyner, M. D., Austin, Texas (abstract not furnished); Relaciones de la Oftalmometria con la Skiascopia, by Dr. Pedro Lagleyze, Buenos Ayres, Argentine (abstract); The Ætiology and Early Management of Glaucoma, by G. E. Dean, M. D., Scranton, Pa. (abstract not furnished); Acute Monocular Neuro-retinitis, with Cases, by B. L. Millikin, M. D., Cleveland (abstract not furnished); A Contribution to Refractive Errors, by J. C. Morgan, M. D., Philadelphia (abstract not furnished); The Necessity for Complete Suspension of Accommodation by Mydiatics in the Adjustment of Glasses, by C. C. Savage, M. D., Nashville (abstract not furnished); The Relation of Skiascopy to other Tests for the Determination of the Ocular Refraction, by H. V. Wurde-mann, M. D., Milwaukee (abstract); A Few Thoughts about Ophthalmometry, as to what the Javal Instrument will do, and what it will not, by Louis L. Lautenback, M. D., Philadelphia (abstract not furnished); Astigmatism following Cataract Extraction and other Sections of the Cornea, by Edward Jackson, M. D., Philadelphia (abstract); Refraction Anomalies of Artists, by J. C. Morgan, M. D., Philadelphia (abstract not furnished); Further Observations on the Eye of the Negro, by C. W. Kollock, M. D., Charleston (abstract not furnished); Exophthalmus Traumaticus, by L. F. Love, M. D., Philadelphia (abstract not furnished); Graduated and Complete Tenotomy for the Relief of Heterophoria, with a New Objective Test for Use during the Operation, by S. Lewis Ziegler, M. D., Philadelphia (abstract); Cataract Extraction with the Iris Retractor, by Francis Valk, M. D., New York.

Section in Laryngology and Rhinology.—Paper by Robert Levy, M. D., Denver (neither title nor abstract furnished); The Relation of Diseases of the Rectum to Nasal Catarrh, by W. John Harris, M. D., St. Louis (abstract); Electrolysis for the Relief of Certain Morbid Conditions of the Nasal Septum, by James E. Newcomb, M. D., New York (abstract not furnished); Myxosis of the Pharynx, by W. C. Glasgow, M. D., St. Louis (abstract); The Easiest and Most Practical Means of making Galvano-cauterics, especially to Turbinate Hypertrophies, by Arthur G. Hobbs, M. D., Atlanta, Ga.; paper by W. H. Daly, M. D., Pittsburgh (neither title nor abstract furnished); paper by A. C. Wolfe, M. D., Columbus, Ohio (neither title nor abstract furnished); The Use

of Sodium Formate in Laryngeal Disease, by E. L. Shurly, M. D., Detroit (abstract not furnished); paper by G. B. Lawason, M. D., New Orleans (neither title nor abstract furnished); The Utility of the Electro-cautery Snare, by H. W. Loeb, M. D., St. Louis (abstract); paper by Jonathan Wright, M. D., Brooklyn (neither title nor abstract furnished); paper by John N. Mackenzie, M. D., Baltimore (neither title nor abstract furnished); Reflex Epilepsy from Intranasal Disease, by John O. Roe, M. D., Rochester (abstract); paper by Charles H. Knight, M. D., New York (neither title nor abstract furnished); paper by Alexander MacCoy, M. D., Philadelphia (neither title nor abstract furnished); paper by J. C. Mulhall, M. D., St. Louis (neither title nor abstract furnished); A Case of Angioma of the Nasal Septum, by Frederick C. Cobb, M. D., Boston (abstract); A Case of Elongation of the Epiglottis Reduced by Operative Measures, by Price Brown, M. D., Toronto (abstract); paper by Dr. Edward O. Cleyer, Buenos Ayres, Argentine Republic (neither title nor abstract furnished); Some of the Throat Conditions observed in Gouty Subjects, by S. Solis-Cohen, M. D., Philadelphia (abstract); paper by C. E. Bean, M. D., St. Paul (neither title nor abstract furnished); paper by H. Holbrook Curtis, M. D., New York (neither title nor abstract furnished); The Ultimate Prognosis in Neglected Adenoid Hypertrophy, by D. Bryson Delavan, M. D., New York (abstract); Report of a Case of Myxo-sarcoma of the Nasal Cavity, by C. W. Richardson, M. D., Washington, D. C. (abstract); The Surgical Treatment of Empyema of the Maxillary Sinus, by Dr. Edward Obejero, Buenos Ayres, Argentine Republic (abstract not furnished); Report on Cases of Tubercular Laryngitis treated in Colorado Springs, by S. E. Solly, M. D., Colorado Springs (abstract); Sarcoma of the Naso-pharynx, with the Report of a Case, by James E. Logan, M. D., Kansas City (abstract); Alumnol in Diseases of the Throat and Nose, by J. Mount Bleyer, M. D., New York (abstract); Some Forms of Nasal Reflexes, with Report of Cases, by S. K. Merrick, M. D., Baltimore (abstract); Hysterical Aphonia and Deafness, by E. Fletcher Ingals, M. D., Chicago (abstract); Clinical Notes of Cases of Tubercular Ulceration of the Larynx treated by the Krauss Method at the Throat and Chest Clinic of the Emergency Hospital, by T. Morris Murray, M. D., Washington, D. C. (abstract); Indications and Opportunity for Opening the Mastoid Process, by Dr. Edward Obejero, Buenos Ayres, Argentine Republic (abstract not furnished); On the Treatment of Empyema, with Due Regard to Normal Pulmonary Contractibility, by Dan Milliken, M. D., Hamilton, Ohio (abstract).

Section in Otolg.—The Prevention of Deaf-mutism, by C. M. Hobby, M. D., Executive President of the Section, Iowa City, Ia. (formal address); Chronic Disease of the Middle Ear, its Prognosis and Surgical Treatment, by Albert H. Tuttle, M. D., Cambridge, Mass. (abstract); Otacoustic Treatment; its History and Results upon the Deaf and Deaf-mutes, by J. A. Maloney, M. D., Washington, D. C. (abstract); The Phonograph in the Treatment of Deafness, by Johnson Eliot, M. D., Washington, D. C. (abstract); Some Interesting Cases of Mastoid Disease, by S. MacCuen Smith, M. D., Philadelphia (abstract); Opening the Mastoid Cells in Acute Inflammatory Middle-ear Disease, by L. D. Brose, M. D., Evansville, Ind. (abstract); Adenoids: a Contributive Factor in Aural Affections, by M. D. Lederman, M. D., New York (abstract); Compressed Air, Vapors, and Sprays in the Treatment of the Middle Ear and Eustachian Tubes, by H. V. Würdeman, M. D., Milwaukee (abstract); The Present Condition of Otolg in Europe, by Laurence Turnbull, M. D., Philadelphia (abstract); Pathological Conditions following Piercing of the Lobules of the Ear, by Max Thorner, M. D., Secretary of the Section, Cincinnati (abstract); Craniometric Measurements of Five Hundred Skulls in Relation to Aural Topographic Anatomy, by B. Alex. Randall, M. D., Philadelphia (abstract); Description of a Focusing Ear Trumpet, by Edmund D. Spear, M. D., Boston (abstract in hands of Literary Bureau); The Modern Non-surgical Treatment of Chronic Purulent Inflammation of the Middle Ear, with Indications for Surgical Interference, by R. C. Hefebower, M. D., Cincinnati (abstract in hands of Literary Bureau); The Treatment of Suppurative Processes of the Attic, by J. F. Fulton, M. D., St. Paul; The Non-surgical Treatment of Attic Necrosis, by W. Cheatham, M. D., Louisville; Preventable Deafness, by C. S. Turnbull, M. D., Philadelphia; Contribution to the Study of Aural Syphilis, by Max Toepflitz, M. D., New York; On Localization of Sound, by C. Barck, M. D., St. Louis; Indications for the Mastoid Operation and the Prefer-

able Methods, by S. S. Bishop, M. D., Chicago; Description of a Middle-ear Powder Blower, by R. D. Barret, M. D., St. Louis.

Section in Dermatology and Syphilology.—American Dermatology, by A. H. Ohmann-Dumesnil, M. D., Executive President of the Section, St. Louis (formal address); Lupus, its Excision, with Reports of Cases, by R. Merrill Ricketts, M. D., Cincinnati (abstract); Glycosuria as an Additional Symptom in the Neurotic Origin of Dermatitic Herpetiformis, by J. M. Winfield, M. D., Brooklyn (abstract); A Statistical Record of nearly Five Thousand Cases of Smallpox, by W. M. Welch, M. D., Philadelphia (abstract); The Treatment of Diseases of the Nails, by J. V. Shoemaker, M. D., Philadelphia (abstract); Primary Dystrophies of the Skin, by E. Preble, M. D., Cleveland (abstract); Paper by G. Holsten, M. D., Brooklyn (neither title nor abstract furnished); Rhinophyma, by A. W. Gottheil, M. D., New York (abstract not furnished); Rhinophyma, by A. H. Ohmann-Dumesnil, M. D., St. Louis (abstract); Frambesia, "Yaws," by Dr. George Edmund Pierce, British West Indies (abstract); The Question of the Communicability of Leprosy, by Dr. Beaven Rake, Trinidad, West Indies (abstract); Some of the Rarer Tropic Lesions in Leprosy, by Dr. Beaven Rake, Trinidad, West Indies (abstract); Beriberi en el Cauca, by Dr. Evaristo Garcia, Cali, Cauca, Colombia (abstract); Lepra en el Cauca, by Dr. Evaristo Garcia and Dr. Adolfo Tenorio, Cali, Cauca, Colombia (abstract); El Carateo, by Dr. Juan N. Wallis and Dr. Alfredo Garces y Domingo, Arboleda, Colombia (abstract); A Case of Recurrent Pruritus, by A. H. Ohmann-Dumesnil, M. D., St. Louis (abstract); On the Ætiology of Eczema, by A. Ravogli, M. D., Cincinnati (abstract).

Section in Diseases of the Mind and Nervous System.—Formal Address, by C. H. Hughes, M. D., Executive President of the Section, St. Louis; The Garglized Nervous System and some of its Diseases, by C. K. Mills, M. D., Philadelphia (abstract); paper by William A. Hammond, M. D., Washington, D. C. (neither title nor abstract furnished); The Traumatic Psychoneurosis, its Relations to Paranoia, Epilepsy, and Paretic Dementia, by J. G. Kiernan, M. D., Chicago (abstract not furnished); paper by T. Diller, M. D., Pittsburgh (neither title nor abstract furnished); paper by E. C. Seguin, M. D., New York (neither title nor abstract furnished); The Urine in Sexual Neurasthenia, by C. L. Dana, M. D., New York (abstract not furnished); Suppurative Meningitis and Myelitis, with Exhibition of Specimens, by Græme M. Hammond, M. D., New York (abstract not furnished); The Disease of Inebriety and its Treatment, by T. D. Crothers, M. D., Hartford, Conn. (abstract); Chorea, by Charles Henry Brown, M. D., New York (abstract not furnished); A Study of the Temperature in Twenty-five Cases of General Paralysis of the Insane, by Frederick Peterson, M. D., New York (abstract not furnished); The Present Status of Infantile Cerebral Palsies, by Frederick Peterson, M. D., New York (abstract not furnished); The Successful Management of Inebriety without Secrecy in Therapeutics, by C. H. Hughes, M. D., St. Louis (abstract); Erotopathia: Morbid Erotism, by C. H. Hughes, M. D., St. Louis (abstract); The Medical Treatment of Insanity, by Edward C. Mann, Brooklyn (abstract not furnished); Address of Welcome (in Spanish), by W. A. Hammond, M. D., Washington, D. C.; Where the New-born Baby Learned to Suck, by C. A. F. Lindorme, M. D., Atlanta, Ga. (abstract); The Treatment of Nervous Diseases in Sanitariums, by J. K. King, M. D., Watkins, N. Y. (abstract); The Influence of Alcohol upon the Human Powers and Constitution, by T. L. Wright, M. D., Bellefontaine, O. (abstract not furnished); The Treatment of Cerebral Hemorrhage, by D. R. Brower, M. D., Chicago (abstract not furnished); Neuro-angeio Paralysis and its Relation to Paretic Dementia, by Frank C. Hoyt, M. D., Clarinda, Ia. (abstract not furnished); paper by S. Weir Mitchell, M. D., Philadelphia; paper by E. C. Spitzka, M. D., New York; paper by O. T. Sherman, M. D., Boston; Civil Service in American Hospitals for the Insane, by S. V. Clevenger, M. D., Chicago (abstract); La Renguera, by Dr. Daniel Gutierrez y Arango, Cali, Cauca, Colombia (abstract); Paralisis Espastica Cerebral de los Adultos, by Dr. Manuel Carmona y Valle, City of Mexico, Mexico (abstract); On the Prognosis of "Railway Spine," by F. X. Dercum, M. D., Philadelphia (abstract); The Nervous Symptoms of Storms, by Curran Pope, M. D., Louisville (abstract not furnished); A Peculiar Type of Vaso-motor Neurasthenia (the Pulsating Disease) with Report of and Operation for the Same, by C. L. Dana, M. D., New York (abstract); The Curability of Inebriety, by J. G. Reed, M. D., Elmwood

Place, Ohio (abstract); Nutrition against Stimulation, by W. H. Maxon, M. D., St. Louis (abstract).

Section in Hygiene, Climatology, and Demography.—The Climate of Jamaica, by Dr. J. C. Philippo, Kingston, Jamaica (abstract); Les mesures prophylactiques contre les épidémies, by Dr. J. B. Da Lacerda, Rio de Janeiro (abstract); Practical Measures in the Prevention of Tuberculosis, by Lawrence F. Flick, M. D., Philadelphia (abstract); Apuntes sobre la Patología del Departamento Fluvial de Loreto, by Dr. Leonidas Arendano, Lima, Peru (abstract); Ojeada Retrospectiva sobre la Organización de la Sanidad en los Ejércitos Españoles, by Dr. Felix Estrada y Cotoyra, Havana, Cuba (abstract); The Climate of Western North Carolina, with a Consideration of the Relative Value of High and Medium Altitudes in the Treatment of Pulmonary Tuberculosis, by Karl von Ruck, M. D., Asheville, N. C. (abstract); The Climate of the Santa Cruz Mountains, by James Henry Clark, M. D., Jamaica, W. I. (abstract); On the Early Detection and Seasonable Climatic and other Treatment of Phthisis, by Charles Denison, M. D., Denver (abstract not furnished); The Distribution of Disease by Isthmian Practice, or the Direct Responsibility of the Republic of Columbia, S. A., in the Burial and Disinterring of the Dead on the Isthmus of Panama, by Wolfred Nelson, M. D., New York (abstract); The Three Climates of Jamaica, B. W. I., Its Coast or Tropical, Temperate, and Mountain Climates, Jamaica, considered as a Winter Island for Health, by Wolfred Nelson, M. D., New York (abstract); A Brief Consideration of Elephantiasis Arabum as Observed in the Samoan Islands, by John C. Wise, M. D., Washington, D. C. (abstract); On the Climatology of Egypt, by Dr. Grant (Bey), Cairo, Egypt (abstract); The Hygiene and Demography of Jamaica, by Dr. James Cecil Philippo, Kingston, Jamaica (abstract); The Need of Research in Preventive Medicine, by J. M. Postle, M. D., Hinkley, Ill. (abstract); The Effect of Advanced Civilization on Disease, by W. J. Moody, M. D., Plainfield, Iowa (abstract); Necessary Laws that should be Enacted by the Several States by which Municipal Health Authorities may be enabled to Control Infectious Diseases (discussion); The Cause and Prevention of Diphtheria (discussion); The Limitation and Prophylaxis of Tuberculosis (discussion); The Role of Municipal Sanitation in the Limitation and Eradication of Yellow Fever (discussion); On the Climatology of Mesopotamia, by John Sundberg, M. D., U. S. Consul, Bagdad, Asiatic Turkey (abstract not furnished); On the Climatology of Puerto Rico, by Pedro José Salicrup, Secretary of the Section, New York (abstract not furnished); Formal Address, by Albert L. Gihon, M. D., Medical Director, United States Navy, Naval Hospital, Washington, D. C.

Section in Marine Hygiene and Quarantine.—Formal Address, by Walter Wyman, M. D., Executive President of the Section, Surgeon General of the United States Marine Hospital Service, Washington, D. C.; The Hygiene of Vessels, Commercial and Naval, including the Question of Ventilation, Heating, Sanitary Arrangements, the Disposal of Cargo so as to Facilitate Disinfection, Steam Disinfection, Food Supply, etc. (discussion opened by Dr. John J. Cassidy, Ontario, Canada) (abstract); Epidemic and Exotic Diseases Propagated by Shipping, What Diseases should be Quarantined. Responsibility of Nations for Epidemics; India for Cholera, South America for Yellow Fever. Can a Feasible Plan be Devised to totally Exterminate Cholera? International Intervention to Prevent the Propagation of Cholera or other Epidemic Diseases by Pilgrimages or Immigration (discussion opened by Wolfred Nelson, M. D., New York); International Uniformity in Quarantine Regulations (discussion opened by Dr. Juan J. Ulloa, San José, Costa Rica); The Medical Officers of Passenger Vessels; Methods for their Selection, Duties, etc. (discussion); The Vital Statistics of Seamen and Firemen. The Question of the Medical Examination of Crews Preparatory to Shipping (discussion); The Supervision of Vessels by Government Medical Inspectors at Ports of Arrival and Departure. Code of Rules for Handling an Epidemic Disease that Breaks out on Shipboard. Disinfection of Passengers and Crew during a Voyage. Location and Arrangement of Ship's Hospitals (discussion); Arrangement of Detail and Equipment of Quarantine Stations: *a*, Inspection Stations; *b*, Local Quarantine Stations; *c*, Refuge Stations. Methods for Handling Infected or Suspected Vessels. Interstate and Inland Quarantine. Sanitary Cordons; Camps of Refuge; Camps of Probation. Recent Improvements in Hospitals for Infectious Diseases. Railroad

Inspection and Quarantine. Length of Time Vessels should be Held in Quarantine. Conditions that should Determine Proclamation of Quarantine against a Country (discussion); Under what Requirements may Passenger Traffic be carried on between a Port Infected with Yellow Fever and a Southern Port of the United States during the Summer with the Least Obstruction to Such Traffic (discussion); What Merchandises should be Considered as Requiring Treatment if Shipped from a Port or Place infected with Cholera, Yellow Fever, or Small-pox? (discussion); Methods of Disinfection: *a*, Persons; *b*, Baggage; *c*, Cargoes; *d*, Vessels. Recent Improvements in Quarantine Appliances; Steam Chambers; Sulphur Furnaces. Liquid Sulphur Dioxide as a Disinfectant. Treatment of Ballast Water; Solid. What Time should an Infected Vessel be detained in Quarantine? *a*, for the Cholera; *b*, for Small-pox; *c*, for Typhus Fever; *d*, for Plague; *e*, for Yellow Fever. Methods of Disposal of the Bodies of those that Die while in Quarantine (discussion).

Section in Medical Pedagogy.—Medical Education in the United States, by J. Collins Warren, M. D., Executive President of the Section, Boston (formal address); A Consideration of the Position of Bacteriology in a Course of Medical Study; its Importance and Growth of Late Years, together with some Account of the Development of the Department in Harvard Medical School, by Harold C. Ernst, M. D., Boston (abstract); The Importance of Physiological Chemistry as a Part of Medical Education, by R. H. Chittenden, M. D., New Haven (abstract); A Contribution to the Study of Medical Education in the United States, by Bayard Holmes, M. D., Chicago (abstract); Methods of Medical Education, by Victor C. Vaughan, M. D., Ann Arbor (abstract); The Aims and Methods of Medical Education, by W. C. Dabney, M. D., University of Virginia, Va. (abstract); Methods of Instruction in Clinical Medicine, by F. C. Shattuck, M. D., Boston (abstract not furnished); The Latent Power of some American Medical Ideas, by Ephraim Cutter, M. D., New York (abstract); How to Teach the Cæsarean and Porro Operations in the Classroom, by E. Gustav Zinke, M. D., Cincinnati (demonstration); Demonstration of the Physiological Action of the Heart, by J. P. Sawyer, M. D., Cleveland (abstract not furnished); Demonstration of Methods of Teaching Surgery and Anatomy by Free-hand Drawing with Colored Crayons, by M. H. Richardson, M. D., Boston (abstract not furnished); The Relation of Biology to Medical Education, by W. T. Sedgwick, M. D., Boston (abstract not furnished); The Status of the "Preceptor" in Modern Medical Education (informal discussion); The Proper Position of the Medical Classics in the Modern Medical Curriculum (informal discussion); Which of the Collateral Sciences ought to be Eliminated from the Medical Curriculum, and which of them ought to be Embraced in the Required Preliminary Studies? (informal discussion); On the Feasibility of Arranging a practically Uniform Course of Medical Instruction and Requirements in the Various American Countries and Colonies (informal discussion to be participated in more particularly by the official delegates of the various governments and of the various medical schools).

Section in Medical Jurisprudence.—Medical Jurisprudence in its Relations to Dipomania, by Edward C. Mann, M. D., Brooklyn (abstract not furnished); La Antropología Criminal de Puerto Rico, by Dr. José Rodríguez Castro, Puerto Rico (abstract); The Present Status of Criminal Anthropology, by G. Frank Lydston, M. D., Chicago (abstract); Hypnotism: does it menace Public Weal? by Ferd. C. Valentine, M. D., New York (abstract); The Doctor in Court, by D. R. Wallace, M. D., Terrell, Texas (abstract not furnished); The Medico-legal Aspect of Hypnotism (discussion); The Question of Responsibility in the Extirpation of the Uterine Appendages in the Insane and in Minors (discussion); The Legal Aspect of Abdominal Section for Penetrating Wounds of the Abdomen (discussion); Medical Jurisprudence: its Aims, Importance, Status, and Demands for Higher Recognition and Increased Facilities for Instruction by our Institutions of Learning devoted to fitting our Young Men for the Professions of Law and Medicine, by A. Garcelon, M. D., Executive President, Lewiston, Me. (formal address).

Section in Railway Surgery.—Formal address, by C. W. P. Brock, M. D., Executive President of the Section, Richmond; Railway Surgery as a Branch of the Surgical Art, by E. R. Lewis, M. D., Kansas City (abstract); The Nose and Throat Service of the Missouri Pacific Hospital for 1892, by Hannu W. Loeb, M. D., St. Louis (abstract); The

History of Railway Surgical Organization, by C. B. Stemen, M. D., Fort Wayne, Ind. (abstract); Hot Water in Contusion of the Bones of the Foot and Ankle, by G. Chaffee, M. D., Brooklyn (abstract not furnished); Excision of the Shaft of the Femur following Pathological Fracture, by A. J. Mullen, Jr., M. D., Michigan City, Ind. (abstract not furnished); Implantation of Senn's Decalcified Bone; Recovery, by B. F. Wilson, M. D., Slater, Mo. (abstract not furnished); The Essential Elements of Ideal Surgery, by B. F. Wilson, M. D., Slater, Mo. (abstract not furnished); paper by T. C. Kennedy, M. D., Shelbyville, Ind. (neither title nor abstract furnished); paper by J. N. Warren, M. D., Sioux City, Iowa (neither title nor abstract furnished); The Torsion of Arteries for the Arrest of Hemorrhage, by J. B. Murdoch, M. D., Pittsburgh (abstract).

The William F. Jenks Memorial Prize.—The third triennial prize of five hundred dollars, under the deed of trust of Mrs. William F. Jenks, will be awarded to the author of the best essay on Infant Mortality during Labor, and its Prevention. The conditions annexed by the founder of this prize are, that the "prize or award must always be for some subject connected with obstetrics, or the diseases of women or the diseases of children"; and that "the trustees, under this deed for the time being, can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income in their hands may, in their judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of Philadelphia." The prize is open for competition to the whole world, but the essay must be the production of a single person. The essay, which must be written in the English language, or, if in a foreign language, accompanied by an English translation, should be sent to the College of Physicians of Philadelphia, Pennsylvania, U. S. A., before January 1, 1895, addressed to Horace Y. Evans, M. D., Chairman of the William F. Jenks Prize Committee. Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents within one year. The committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

The Eleventh International Medical Congress.—Regarding the postponement of the meeting, the executive committee says: "In consequence of the sanitary condition of several of the European states which prevents their medical men leaving home, and following the advice of many of the most prominent scientists, both Italian and foreign, the executive committee of the congress has decided by a large majority to postpone the meeting till April, 1894. The exact date of the inauguration will soon be fixed."

Proceedings of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

Nineteenth Annual Meeting, held at Long Branch, N. J., on Tuesday, Wednesday, and Thursday, July 25, 26, and 27, 1893.

The President, Dr. HENRY M. LYMAN, of Chicago, in the Chair.

(Concluded from page 192.)

A New Pododynamometer.—Dr. WILLIAM C. KRAUSS, of Buffalo, exhibited an apparatus consisting of a wide, heavy belt, its inner surface padded so that its adjustment around the

wast would not be uncomfortable. A heavy webbing was looped through the belt, passing over the shoulders, which helped to retain the belt in position. A common dynamometer was connected with the belt by means of a strong adjustable strap, permitting it to be lengthened or shortened according to the stature of the patient. Connected with the dynamometer was a stirrup, the base of which was padded for receiving the foot. Pressure exerted upon the stirrup would be registered upon the dial of the dynamometer and the exact strength of the extensors of the leg could thus be ascertained. The apparatus could be applied in either the standing or the recumbent posture. The leg should be flexed to about ninety degrees at the knee. To tell the strength of the calf muscles the strap should be lengthened and the foot flexed upon the leg.

Infectious Endocarditis with General Septicæmia, complicated with Multiple Neuritis.—This paper was a joint communication by Dr. JAMES H. LLOYD and Dr. DAVID RIESMAN, of Philadelphia. It was founded on the report of two cases.

The first case was in a man who was admitted to hospital with a typhoid type of fever which had continued for three months, and was complicated with multiple neuritis. The diagnosis of typhoid fever was excluded. The neuritis was irregularly distributed. An aortic regurgitant murmur, with water-hammer pulse, gradually developed, and later a purpuric eruption appeared. A diagnosis was made of infectious endocarditis with secondary septic neuritis. At the post-mortem immense vegetations were found on the aortic valves, with infarcts in the spleen and in one kidney. Sections of the spinal cord and nerves were shown, exhibiting slight posterior sclerosis in the cord and extensive inflammation in the nerves.

The second case, also in a man, simulated typhoid fever, with the yellow-colored stools. At the post-mortem multiple abscesses in the brain, a large embolus in the left brachial artery, and an infarct in one kidney were found, dependent upon a giant growth of vegetations as large as a pullet's egg attached to the inner coat of the aorta, overhanging the orifices of the innominate, carotid, and subclavian arteries.

Dr. DANA regarded the septic origin of neuritis as of much importance. He cited the case of a young man with symptoms of rheumatism that did not respond to antirheumatic medication. Pyelitis developed in two or three weeks, followed by multiple neuritis affecting all the extremities. It was well known that multiple neuritis in this country was most frequently due to alcohol, and not of microbic origin. These forms of neuritis had a different clinical history. Some cases had begun with a history of multiple neuritis and had then shown symptoms of locomotor ataxia or other spinal-cord affection. There was a class of cases where the neuritis extended and ultimately involved the cord.

Dr. DEBUCUM agreed with Dr. Dana and believed posterior sclerosis occasionally followed multiple neuritis. He asked if septic symptoms had preceded the neuritis in Dr. Lloyd's case with a history of alcoholism, to which Dr. Lloyd answered Yes.

Tumor of the Angular Gyrus.—Dr. G. L. WALTON, of Boston, reported a case of tumor involving the angular gyrus and extending into the temporal, occipital, and parietal regions. The symptoms were temporal and occipital headache, vomiting, paralysis of the left abductors from pressure, double optic neuritis, hemianopsia, word-blindness, aphasia, and word-deafness. An operation was attempted by Dr. Richardson, of Boston. The tumor, however, proved too large and diffuse for removal. The patient lived two months, with comparative relief of pressure symptoms, including the abductors paralysis. Toward the end the right hand and arm became somewhat paretic. The autopsy showed the growth to be a glioma.

Dr. SEGGIN suggested that the ocular symptoms were probably not due so much to lesion of the angular gyrus as to involvement of the fibers of the fasciculus opticus which lie immediately under it. The lesion, being rather deeply placed, must necessarily involve the white fasciculi.

Dr. WALTON agreed with Dr. Seggin that the hemianopsia was due to affection of the optic radiations on their way to the occipital lobe. The early appearance of mind-blindness, together with red spots in the field of vision, suggested early cortical irritation in the region of the angular gyrus. If the symptom mind-blindness was considered due to an affection of association fibers, we were justified in assuming the association fibers implicated to be those running to the angular gyrus.

Congenital Cerebral Hemiplegia.—Dr. E. D. FISHER, of New York, read the history of a case of infantile cerebral hemiplegia of congenital origin. The symptoms were a complete right hemiplegia with marked atrophy and exaggerated reflexes, epilepsy, and imbecility. The cranial measurements showed morbid deficiency in the bicaudicular diameter and facial length. At the autopsy the left hemisphere was found much atrophied. The right cerebellar hemisphere was also atrophied. The microscopical specimens showed a decrease in the number of cortex cells, but those present were not much diminished in size. There was some loss of acuteness of the angles of the cells, but little pigmentary or granular change. The cord was but slightly affected. He believed that this would seem to show that in some cases there might be a fair amount of normal cerebral structure even when there was such pronounced cerebral disease.

Dr. SACHS said that in the cases in which motor areas presented developmental defect, degeneration did not necessarily occur.

Lesion of the Thalamus and Internal Capsule.—Dr. CHARLES K. MILLS, of Philadelphia, contributed the notes of a case in which there was a lesion of the thalamus and internal capsule. The patient had an apoplectic attack in 1877 and died in 1892. The symptomatology of the case summarized was: Hemianesthesia; paresis with contractures, not marked; and inability to recognize the position of the affected limbs. Hemianopsia and all affections of the special senses were absent, as were also athetoid and choreoid movements. The autopsy showed a hemorrhagic cyst which had destroyed about two thirds of the substance of the thalamus, including the entire external tubercle, and a large portion of the pulvinar. The anterior extremity and the internal and inferior surfaces of the thalamus were intact. The lesion had invaded the posterior arm of the capsule to a slight extent.

Tumor of the Optic Thalamus.—Dr. WHARTON SINKLER, of Philadelphia, read a paper on this subject, and presented the specimen from a case, with the following history: The patient was an unmarried woman, forty-six years of age, who was in excellent health up to January, 1893. Her first symptoms were somnolence and loss of mental vigor. Her manner was indifferent and listless. In April there was some aphasia and subsequent paresis of the right side of the face, with unsteadiness of gait and awkwardness in the use of the right hand. When she was first seen by him there were marked paralysis and partial anesthesia of the right side of the face, but there was no impairment of sensation of the arm or leg. There was decided mental hebetude, but no loss of memory. She could not walk, on account of unsteadiness. The knee-jerks were exaggerated. The temperature was subnormal and the pulse from 48 to 60. The pupils responded to light and accommodation. There was no nystagmus, hemianopsia, or change in the fundus oculi. The symptoms increased in severity, the temperature rose rapidly, and the patient died on May 25th. There had been no convul-

sions. The post-mortem showed the skull and membranes healthy. The cortex was normal in color and consistence. The left optic thalamus was the seat of a growth as large as a hen's egg, which encroached upon the corpus striatum and the posterior part of the internal capsule. The tumor had not been examined microscopically, but was probably a fibroma. The points of interest were the hysterical symptoms which were present at the onset, the fact that the anesthesia was confined to the face, and the question which arose as to the possibility of operation.

These two papers were discussed together.

Dr. DANA had had two cases—one with tumor and the other with softening in that region. Somnolence was a prominent symptom. The phenomenon of somnolence was characteristic where the posterior portion of the optic thalamus and the neighborhood of the corpora quadrigemina were involved.

Dr. SEGGIN had observed a patient who probably had a tumor in this locality with somnolence, which was increased by the use of iodide of potassium. He asked if such effect of the iodide had been observed by any of the members present.

Dr. DANA was familiar with a case where the iodide had acted as a hypnotic.

Dr. GRAY had noticed that the iodide had produced somnolence in a case of cerebro-spinal meningitis.

Dr. LESZYNSKY thought that the iodide only acted indirectly as a hypnotic by relieving the pains of syphilis.

Dr. SINKLER remarked that in his case the somnolence had diminished after the administration of the iodide.

The Localizing Value of Aphasia.—Dr. GEORGE J. PRESTON, of Baltimore, read a paper upon this subject, and called attention to the fact that aphasia had hardly commanded its proper place in the domain of cerebral localization. The centers for the speech processes and the visual and auditory centers were described. In connection with word-blindness, two cases of hemianopsia were related, one with autopsy, in which there had been no word-blindness, as might have been expected. A case of mixed aphasia was related and the brain exhibited. The case had shown absolute motor aphasia, together with word-blindness, and yet the lesion was confined to the third frontal convolution, the occipital cortex showing no disease. The general value of speech disturbance as an aid to localization, especially in disease or injury of the brain, was discussed. A case was reported in which there had been general speech disturbance, with distinct mental symptoms, and the patient was at times maniacal. Upon the strength of the general disturbance of the speech processes, the skull was trephined over Broca's region and the lower surface of the dura found covered with blood. This case was mentioned to show how valuable speech disturbances might be in diagnosis, although very general in nature and not belonging to any recognized variety of aphasia.

Spinal Neurasthenia.—Dr. LEONARD WEBER, of New York, presented a contribution upon this subject. He objected to any single plan of treatment as too much in the nature of routine and not likely to be of permanent service to the patient, while a proper combination of the well-known methods based upon careful individualization was apt to be of greater benefit. In the grave forms of neurasthenia caused by mental and physical overwork, the prognosis so far had not been good, even as to relative recovery. If the reports could be trusted, it would seem that we had in hypnotic suggestion a remedy of extraordinary power in some of these cases. In conclusion, he related the history of some cases of severe neurasthenia brought about by protracted mercurial inunction and another caused by the prolonged daily use of small doses of Carlsbad salts. Both patients had recovered at the end of about a year.

Observations in a Case of Myxœdema.—Dr. WILLIAM C. KRAUSS, of Buffalo, read a paper with this title. He reported a case of myxœdema in a woman fifty-three years old, whose mother had been afflicted with similar symptoms. The patient had always been in good health up to her forty-sixth year, although she had never perspired, and the secretions, such as the saliva, nasal mucus, and milk, had always been scanty. Following upon an accident, her face, body, and extremities became swollen, her hair suddenly disappeared from all parts of the body, and she was troubled with severe pains, especially through the temples, and a tired, "all-gone" feeling incapacitating her for all kinds of manual labor. She further complained of a feeling of coldness even in midsummer. Her hands were dry, harsh, and scaly, her face was waxy, and her eyes were puffy and swollen. Her temperature ranged from 95.4° to 97.4° F. Her pulse, soft, regular, and uniform, varied from 81 to 88. The œdema-like swelling did not pit on pressure. The urine was normal. The only drug that acted beneficially was perchloride of iron. The author experimented with the thyroid glands of sheep, feeding her for six weeks, but could detect no improvement whatever. Another case seen in consultation was being treated with desiccated thyroids, also without benefit.

Simulation in Traumatic Nervous Diseases.—Dr. PHILIP COOMBS KNAPP, of Boston, in a paper with this title, said that although many men would simulate disease if it was to their advantage, we rarely found successful simulation of the various traumatic nervous affections. Until recently few cases had been reported by neurologists; most of the old cases had been reported by general practitioners whose knowledge of nervous diseases was limited. In non-traumatic hysteria and neurasthenia we saw many reasons which would lead us to judge that the symptoms did not really exist. Many persons unjustly accused the victims of these diseases of pretending to be ill, when really the malady was a serious one. Contraction of the visual field, anesthesia, tremor, disturbances of the reflexes, circulatory disturbances, and Mannkopf's symptom were to be regarded as important objective signs. Few simulators could have intelligence enough to withstand a searching examination by a skilled neurologist. Furthermore, a man could keep his attention fixed on any subject only for a very brief time, and if he must be prepared to defend his simulation of half a dozen different symptoms, he would inevitably be tripped up by unexpected tests applied when his attention was diverted.

Three cases were cited in which the defense had maintained that there was simulation, but in every case objective evidence had proved the reality of the disease. Out of fifty cases where claims for damages had been brought forward, only two could be regarded as cases of simulation and few as cases of exaggeration, and in most of these there had been little reason to suppose there was any deliberate attempt at fraud.

Dr. MILLS believed absolute simulation very infrequent. The cumulative exaggeration of symptoms was comparatively frequent, however. A few people could simulate a type of insanity or traumatic neurosis, but could not easily simulate all the symptoms and signs. He was in favor of the convex-lens test for amblyopia, instead of prisms. He did not consider malingering of common occurrence.

Dr. GRAY thought many persons supposed to be simulating were simply offering to the trained eye symptoms indicative of possible simulation. He related a case of traumatic neurasthenia cured by $\frac{1}{2}$ of a grain of atropine taken for two days.

Dr. FIELD considered simulation rare. Gross exaggeration was common in these cases. In almost all there was some exaggeration of the symptoms.

Dr. LLOYD regarded the symptoms of traumatic neurasthenia as nothing but the interparoxysmal symptoms of hysteria. Be-

cause a man became affected with hysteria after an accident there was no reason to believe that he must be a simulator.

Dr. SEGUIN said the influence of the attending physician was often pernicious to the patient. He might not actually coach him, but he suggested. Some patients took advantage of a pre-existing morbid affection. The absence of treatment was responsible for a continuance of the symptoms of traumatic nervous affections. We should be allowed to examine these persons unexpectedly and thoroughly, and not when sympathetic physicians or counsel were present. He protested against Dr. Lloyd's remarks about the unity of hysteria and traumatic neurasthenia.

Dr. KNAPP said that he saw cases with minor exaggeration, in contrast to Dr. Field's cases of the grossest exaggeration. He agreed with Dr. Seguin regarding the absence of treatment, but he had had a number of cases where treatment had been early and properly instituted.

Nigrosin as a Stain.—Dr. SEGUIN exhibited a specimen stained with a 1-to-2,000 solution of nigrosin—a method he had used years ago, but neglected to publish. One of the advantages was that specimens might be safely left in the solution for twenty-four hours.

The Microbic Origin of Chorea.—Dr. C. L. DANA, of New York, read the history of a case of chorea, and an account of the autopsy. The patient, a man of twenty-six, had had chorea since the age of fifteen. The attacks came exactly like those of the ordinary chorea of Sydenham. At first there were intermissions, but the disease finally became chronic. The spasmodic movements were general and violent. There was no heart disease or rheumatism. The patient died from exhaustion. The post-mortem showed macroscopically a conspicuous chronic leptomenigitis involving the vertex of the brain. Microscopically, this was found to be mainly a proliferation process, without exudation or much cell infiltration. In the superficial layer of the cortex there was cellular infiltration with degenerative changes. At this point a diplococcus was found. Full details were given of this by Dr. Brooks, the bacteriologist. The micro-organisms were found only in the deep layer of the pia and the superficial part of the cortex. In addition, there were found peculiar hyaline bodies in the three outer layers of the cortex and less numerous in the basal ganglia. There were evidences of meningeal irritation, vascular disease (arteritis), and nerve-root irritation in the medulla and upper part of the cord. The lower part of the cord was not examined.

Election of Members.—The following-named gentlemen were elected to active membership: Dr. Brower, of Chicago, Dr. Burr, of Philadelphia, and Dr. Diller, of Pittsburgh. Dr. Arnold Pick, of Prague, was elected an associate member.

Papers Read by Title.—The Genesis of Hallucination, Illusion, and Delusion, by Dr. H. A. Tomlinson, of St. Peter, Minn.; The Diagnosis of General Paresis, by Dr. L. C. Gray, of New York; A Report of Two Cases of Friedreich's Disease, by Dr. Frank R. Fry, of St. Louis; The Metapore, or Foramen of Magendie, in Man and in the Orang, by Dr. Burt G. Wilder, of Ithaca, N. Y.; Observations on the Relation of Chorea to Rheumatism, by Dr. C. Eugene Riggs, of St. Paul; Experiences in the Use of Testiculin and Cerebrin, by Dr. J. J. Putnam, of Boston; Peripheral Paralysis after Surgical Operations, by Dr. V. P. Gibney, of New York; and Traumatic Brachial-plexus Paralysis in Infants, by Dr. W. M. Leszynsky, of New York.

Election of Officers.—The officers elected for the ensuing year were: President, Dr. B. Sachs, of New York; vice-presidents, Dr. F. X. Dercum, of Philadelphia, and Dr. P. C. Knapp, of Boston; secretary and treasurer, Dr. G. M. Hammond, of New York; counselors, Dr. E. C. Seguin, of New York, and Dr. J. H. Lloyd, of Philadelphia.

Book Notices.

A Contribution to the Pathology of the Vermiform Appendix.

By T. N. KELNACK, M. D. London: H. K. Lewis, 1893.

This monograph was presented to the Victoria University as a dissertation for the degree of doctor of medicine, and it embodies the main results of an extended investigation into a number of points connected with the pathology of the cæcal appendage.

The author finds that variations in the length of the appendix are independent of sex, age, height of body, and variations in size of the cæcum or length of the intestine; so also there is no fixed standard for the size of the appendix or of its lumen. Both he and other observers agree that it presents the greatest variety in its situation, excluding, of course, external and internal hernia of the appendix.

There are two interesting sections on cystic dilatation of the appendix and on abnormal substances that the appendix may contain.

The author mentions the varieties of inflammation of the appendix recognized by different observers, and he tabulates six varieties: simple, perforative, recurrent, tubercular, typhoid, and actinomycotic. He objects to the term "catarrhal" being employed to designate simple inflammation. He subdivides perforative inflammation into that with diffuse peritonitis, that with localized peritonitis, and that with extraperitoneal supuration. Each of these varieties is carefully considered in a separate chapter.

He holds with other observers that perforation is the exception rather than the rule in recurrent inflammation. In the chapter on the sequelæ of inflammation of the appendix there is reference to peritonitis, to fistula, to pyelephlebitis, to suppurative hepatitis, and to perinephritic and subdiaphragmatic abscesses. The author does not attach much importance to McBurney's point as a diagnostic resource.

With Treves he protests against the tendency to resort to laparotomy in all cases.

The book gives a very complete *résumé* of the literature of the subject, and it will prove interesting to all desiring an acquaintance with our knowledge of it up to the present day.

A Chapter on Cholera for Lay Readers: History, Symptoms, Prevention, and Treatment of the Disease. By WALTER VOGHT, Ph. B., M. D., Medical Director and Physician in Charge of the Fire Island Quarantine Station, Port of New York; Fellow of the New York Academy of Medicine, etc. Illustrated with Colored Plates and Wood Engravings. Philadelphia: The F. A. Davis Co., 1893. Pp. viii-107. [Price, 75 cents.]

In this little work the author succinctly tells what cholera is, briefly reviews its history both in Europe and in the United States, gives the symptoms that may enable the diagnosis of the disease to be made, makes such suggestions regarding the treatment as will enable a layman to assist himself in the absence of a physician, discusses the prevention of the disease, describes the method of handling an outbreak on shipboard or at a quarantine station, and recommends various methods of disinfection for different articles.

The work is clearly written, with evident care to avoid as much as possible the use of technical terms, and we believe it will prove to be quite serviceable for the purposes for which it is intended.

There is a slight misstatement on page 33, that the cholera spirilla retain their vitality in sea water for four days; Kin-

you's experiments showed that they would remain alive in it for more than two months.

A Manual of Diseases of the Ear. By GEORGE P. FIELD, M. R. C. S., Aural Surgeon to St. Mary's Hospital, etc. Fourth Edition. Illustrated with Colored Plates and Woodcuts. Philadelphia: Lea Brothers & Co., 1893. Pp. x-382. [Price, \$3.75.]

This new edition of Mr. Field's excellent work contains the essentially important advances made in otology during the ten years that have passed since the appearance of the third edition. In the chapter on tinnitus aurium an important section on the use of the galvanic current has been added. The illustrations that have contributed very largely to the value of the former editions are supplemented by some beautiful drawings. The volume is one of the best guides, for the practitioner or the student, with which we are acquainted.

Handbook of Physiology. By W. MORRANT BAKER, F. R. C. S., Lecturer on Physiology at St. Bartholomew's Hospital, and VINCENT DORMER HARRIS, M. D. Lond., F. R. C. P., Demonstrator of Physiology at St. Bartholomew's Hospital, etc. Thirteenth Edition. With upward of Five Hundred Illustrations, including some Colored Plates. Philadelphia: P. Blakiston, Son, & Co., 1892. Pp. xvi-884.

This is the well-known Kirkes's *Handbook of Physiology*. The fact that this is the thirteenth edition speaks of itself for its continued popularity. It has been brought up to date in every respect, and stands easily first among the minor compends of this subject.

Anatomy. A Manual for Students and Practitioners. By FRED. J. BROCKWAY, M. D., Assistant Demonstrator of Anatomy, College of Physicians and Surgeons, New York, and A. O'MALLEY, M. D., Instructor in Surgery, New York Polyclinic. Philadelphia: Lea Brothers & Co., 1892. [Students' Quiz Series.]

The volume before us is one of the series issued under the able editorship of Dr. B. B. Gallaudet. It is mainly founded upon the works of Henle, Quain, and Gray, and is in every respect a worthy and useful book to have at hand in library, office, or dissecting room.

The Chemical Basis of the Animal Body. An Appendix to Foster's Text-book of Physiology (Sixth Edition). By SHERIDAN LEA, M. A., D. Sc., F. R. S., University Lecturer in Physiology in the University of Cambridge, etc. New York: Macmillan & Co., 1893. Pp. 288. [Price, \$1.75.]

As the title indicates, this is a part of Foster's *Physiology*, and is a volume wholly devoted to the chemistry of the animal organism. In it are treated of in great detail the proteids, the carbohydrates, fatty acids and fats, amides and amido acids, urea and uric acid, the xanthin group, the aromatic series, the ptomaines, the bile-acids, and coloring matters of the animal body, of blood, bile, urine, retina, and corpus luteum. It might well be studied by the advanced student after grounding himself in Pellew's work recently noticed by us.

BOOKS, ETC., RECEIVED.

The Law of Cremation. An Outline of the Law relating to Cremation, Ancient and Modern, together with the Rules and Regulations of Various Cremation Societies at Home and Abroad. By Aubrey Richardson, Solicitor. London: Reeves & Turner, 1893. Pp. iv-187.

On Chorea or St. Vitus's Dance in Children. By Octavius Sturges, M. D., F. R. C. P., Senior Physician to the Hospital for Sick Children, and to the Westminster Hospital. Second Edition, revised, and partly rewritten. London: John Bale & Sons, 1893. Pp. xi-188.

The Bacterial Poisons. By Dr. N. Gamaleia. Translated by E. P. Hurd, M. D., Newburyport, Mass. Detroit: George S. Davis, 1893. Pp. xiii-136. [The *Physician's Leisure Library*.]

Sterility in the Woman and its Treatment. By Dr. De Sinety. Translated by E. P. Hurd, M. D. Detroit: George S. Davis, 1893. Pp. 130. [The *Physician's Leisure Library*.]

Weekly Abstract of Sanitary Reports issued by the Supervising Surgeon General M. H. S. under the National Quarantine Act of April 29, 1878. Vol. VII. (Nos. 1-53.)

The Indications for Amputation in Chronic Diseases of the Larger Bones and Joints with a Report of Seventeen Recent Cases, including Three Successful Amputations at the Hip Joint. By J. E. Summers, Jr., M. D., Omaha, Neb. [Reprinted from the *Omaha Clinic*.]

Myxœdema, its Histology, Ætiology, Pathology, and Treatment. With Particulars of a Case successfully treated. By J. Lindsay Porteous, M. D., F. R. C. S. Ed. [Reprinted from the *American Therapist*.]

The Stœchiological Cure of Consumption and Lung Complaints. By John Francis Churchill, M. D. Second Edition. London: David Stott, 1893. Pp. xxxviii.

Clinical Observations on Hysteria. By J. Mitchell Clarke, M. A., M. D. Camb., M. R. C. P. Lond. [Reprinted from the *Lancet*.]

The Significance of Pyrexia in Surgical Cases. With Special Reference to the Temperature Curve before and after Laparotomy. By I. S. Stone, M. D., Washington, D. C. [Reprinted from the *American Gynecological Journal*.]

Memoir of Lawrence Johnson, A. M., M. D. By Dr. Daniel Lewis. (Read before the Medical Society of the County of New York.)

The Mattison Method in Morphinism. By J. B. Mattison, M. D., Brooklyn. [Reprinted from the *University Medical Magazine*.]

Cocaine Inebriety. By J. B. Mattison, M. D., Brooklyn. [Reprinted from the *Medical Record*.]

The Curability of Narcotic Inebriety. By J. B. Mattison, M. D., Brooklyn. [Reprinted from the *Cleveland Medical Gazette*.]

Trional, the New Hypnotic. Its Use in Narcotic Habitués. By J. B. Mattison, M. D., Brooklyn. [Reprinted from the *Medical News*.]

The Ætiology of Narcotic Inebriety. By J. B. Mattison, M. D., Brooklyn. [Reprinted from the *Weekly Medical Review*.]

Twenty-seven Years' Addiction to Opium. Recovery. Relapse. By J. B. Mattison, M. D., Brooklyn. [Reprinted from the *New England Medical Monthly*.]

Importance of Arterio-sclerosis in the Ætiology of Posterior Spinal Sclerosis. By George J. Preston, M. D., Baltimore. [Reprinted from the *Medical News*.]

Septicæmia and its Treatment with Oxygen. By Andrew F. Currier, M. D., New York. [Reprinted from the *American Journal of Obstetrics*.]

Certain Forms of Septicæmia resulting from Abortion. By Andrew F. Currier, M. D., New York. [Reprinted from the *Annals of Gynecology and Padiatry*.]

The Outlook for Medicine. By Bayard Holmes, B. S., M. D., Chicago, Ill. [Reprinted from the *University Medical Magazine*.]

Traumatic Lesions of the Spinal Cord. By George J. Preston, M. D., Baltimore. [Reprinted from the *Medical News*.]

Notes on Cataract Extraction. By W. H. Bates, M. D., New York. [Reprinted from the *Virginia Medical Monthly*.]

Fifteenth Annual Report and Proceedings of the Fifteenth Annual Meeting of the Charity Organization Society of Buffalo, N. Y. For the Year 1892.

Entéroplexie. Par le Dr. Adalbert Ramangé. Mémoire présenté et couronné au Concours de médecine internationale sud-américain. (Premier prix, médaille d'or du gouvernement du Pérou.)

Ueber Gasphegmonen. Von Dr. Eugen Fraenkel, Prosektor am neuen allgemeinen Krankenhause zu Hamburg. Mit drei chromolithographischen Tafeln. Hamburg und Leipsic: Leopold Voss, 1893. Pp. 56.

The Profession of Medicine as sketched from the Outside and from the Inside. By S. W. Kelley, M. D., Cleveland, Ohio. [Reprinted from the *Cleveland Medical Gazette*.]

Indigestion, Gout, Corpulency, and Constipation clearly Explained, Treated, and Dieted. By Thomas Dutton, M. D. Univ. Duhr., Member of the Royal College of Physicians of Edinburgh, etc. Third Edition, enlarged and revised. London: Henry Kimpton, 1893. Pp. x-220.

Introduction to the Catalogue of the Collection of Calculi of the Bladder, upward of One Thousand in Number (besides Foreign Bodies), removed by Operation. By Sir Henry Thompson, F. R. C. S., M. B. Lond., etc. London: J. & A. Churchill, 1893. Pp. iv-5 to 39.

Missouri State Medical Directory. Dedicated to the Medical Profession of Missouri. Containing a carefully prepared List of Physicians, Dentists, and Druggists, together with Colleges, Hospitals, Medical Associations and Societies throughout the State. [The *Medical Fortnightly Press*, 1893.]

Transactions of the Medical Society of the State of New York. For the Year 1893.

Clinical Notes on Chancres of the Tonsil, with Analysis of Fifteen Cases. By L. Duncan Bulkley, A. M., M. D. [Reprinted from the *Transactions of the Medical Society of the State of New York*.]

Some Further Remarks on Elastic Constriction as a Hæmodynamic Measure, with a Letter from Professor von Esmarch. By Nicholas Senn, M. D., Ph. D., Chicago. [Reprinted from the *Medical Record*.]

Report on Rectal Diseases. By W. O. Green, M. D., Louisville, Ky. [Reprinted from the *American Practitioner and News*.]

A New and Safe Method of cutting (Esophageal Strictures. By Robert Abbe, M. D., New York. [Reprinted from the *Medical Record*.]

Tubal and Peritoneal Tuberculosis. By Reuben Peterson, M. D., Grand Rapids, Mich. [Reprinted from the *American Journal of Obstetrics*.]

A Comparison of Artificial and Natural Gastric Digestion, together with a Study of the Diffusibility of Proteoses and Peptone. By R. H. Chittenden, Ph. D., and G. I. Amerman, Ph. D. [Reprinted from the *Journal of Physiology*.]

On a New Therapeutic Method consisting in the Use of Organic Liquids extracted from Glands and other Organs. By C. E. Brown-Séquard, M. D., Paris. [Reprinted from the *British Medical Journal*.]

Roosevelt Hospital, New York. Twenty-first Annual Report, from January 1, 1892, to December 31, 1892. Second Edition.

The Annual Report for the Department for the Insane of the Pennsylvania Hospital. For the Year ending Fourth Month 19th, 1893.

The Surgery of Gall-stone Obstruction. By Robert Abbe, M. D. - [Reprinted from the *Medical Record*.]

Decipherment of Blurred Finger Prints. By Francis Galton, F. R. S., etc. London: Macmillan & Co., 1893. Pp. 18. [Supplementary Chapter to *Finger Prints*.]

Miscellany.

The Modifying Influence of one Disease upon Another.—In the address in medicine delivered at the meeting of the British Medical Association by Dr. David Drummond, for advance proof-sheets of which we are indebted to the *British Medical Journal*, we find the following:

"Passing on from the part of my subject that purports to give prominence to the causal relations of morbid entities, I come to consider briefly some possibilities in the modifying or controlling influence exercised by one disease upon another, and even in this enlarged sphere of inquiry we walk by the light of this principle of causation.

"I may commence with this proposition, that familiar clinical pictures of disease of an organ are often the product of the symptoms peculiar to it, and of others which are the expression of impaired function of another organ. In other words, the full symptom-complex of disease of one organ may be largely contributed to by disease of another, whether produced by the same or some other cause. I can best illustrate my meaning by an example. A patient addicted to alcoholic excess for a considerable number of years is known to be suffering from a group of dyspeptic symptoms, ascribed by the patient, friends, and doctor to this cause, but without a suspicion of gross organic mischief underlying them. This state of health interfered but slightly with the discharge of public and private duties, and indeed, beyond loss of flesh and some discomfort, there was a complete absence of signs of disease. An attack of pneumonia, which tried his powers of endurance considerably and was followed by a slow convalescence, completely altered the character of the case. Within a fortnight or three weeks of the incidence of the pulmonary disorder the abdomen swelled and its superficial veins enlarged, the lips became red and the tongue glazed and red, the face pinched and the urine scanty and full of urates, the motions black, and in every way a most suggestive picture of cirrhosis of the liver was presented, a transformation that astonished the doctor and friends, and was not at first sight easily explained. The only reasonable assumption to account for the apparently rapid development of cirrhosis of the liver was that the disease had existed for a considerable period in a latent form, and that the obstructed portal circulation was compensated for by the usual auxiliary relief, which served to reduce congestion, and thus keep in check the tendency to ascites, etc., until the attack of pneumonia, by producing cardiac insufficiency, upset the balance and led to the appearance of the typical signs hitherto absent. Let us observe that though the pathological changes characteristic of cirrhosis were present, the clinical aspect of the case was incomplete until a new and necessary factor, which had nothing to do with the original disorder, revealed the true nature of the illness. It seems a just inference that the cardiac affection made an important, if not essential, contribution to the completion of the symptom-picture. Indeed, I am disposed to think that in cirrhosis of the liver generally the occurrence of the abdominal dropsy largely depends upon the super-venition of heart weakness. In further support of this view I may mention a very striking case recently admitted to hospital under the care of my colleague, Dr. Limont. The patient, a waiter, a confirmed toper, though active and in fair health, and capable of performing his daily work in a large hotel, developed very suddenly the symptoms of portal obstruction—ascites, etc.—as the result of a few days of exceptionally heavy spirit drinking. His abdominal distention, becoming very great, was relieved by tapping, but an attack of peritonitis rapidly brought the case to a fatal termination. A post-mortem examination revealed a small hob-nailed liver, extensive splenic adhesions, an ample

auxiliary portal relief, and a heart greatly dilated. Here, again, we would have had an incomplete clinical case, but for a symptom which the liver borrowed from the heart. In this connection I may remind my audience that it is not unusual for the dropsey of chronic Bright's disease to be determined by heart weakness. Another illustration of the truth of Agrippa's fable, as told by Livy, in which he insists on the intimate connection between the various parts of the human body.

"But it is not enough to say that clinical pictures may be the joint products of symptomatic morbid relations, for they are often presented to us under the modifying influence of a tendency or bias lent by a former or a concurrent disease; that is to say, it is quite common to meet with pronounced modifications in the clinical pictures of disease which can only be accounted for on the principle that one disease has a determining influence upon the aspect of another. The following illustration will explain my meaning. A young man, aged twenty-two, suffered in the autumn of 1891 from an attack of alcoholic paralysis which revealed itself in the usual form of weakness in the legs, flapping of feet in walking, with, eventually, ankle-drop and paralysis, and paresis of the extensors of the fingers, along with which were severe myalgic pains. He recovered satisfactorily, and at the end of four months he was able to walk, and a little later to ride his bicycle. In May of the following year he had an attack of diphtheria, and in a few weeks, while strictly temperate, he developed, without any defect of sight or impairment of swallowing, numbness and weakness of the legs and hands, and indeed a very similar condition to that which had existed previously, except that the pains were absent. In this case the diphtheritic palsy was exhibited in a somewhat unusual form, in consequence of a predisposition to a special paralytic distribution lent by an attack of alcoholic neuritis. I am aware that cases of diphtheritic paralysis are met with where the lower extremities bear the brunt of the poison, but it is exceptional to meet with so pronounced a paraplegia in the entire absence of the usual signs, such as failure of accommodation, dysphagia, etc.

"Or take this case. A man in the prime of life, who was much addicted to alcohol, came under observation for complete double drop-wrist, presenting every feature of a plumbic case. His history revealed the fact that twelve years previously he had suffered from lead palsy, with blue line, the result of drinking contaminated water, and as he was recovering he acquired intemperate habits and developed into a chronic toper. The consequence was that the paralysis of the extensors became more pronounced, and remained permanent. There was absolutely no paralysis of the lower extremities, and the knee-jerk was normal.

"The modifying influence of one lesion upon another may be, as is well known, decidedly beneficial. Thus, sarcoma and lupus may yield to the poison of erysipelas; of which fact, it is reasonable to suppose, more will be made in the immediate future.

"The controlling effect of disease on disease is also to be seen in the fact that it is quite rare for pulmonary tuberculosis to spring up in the course of a cardiac affection. And, again, it is not unusual when lardaceous disease develops in consequence of chronic phthisis, to observe a distinct tendency on the part of the tubercle to be arrested in its growth. And, further, in this connection I may mention that I have been struck with the rareness with which a pneumonia complicated with jaundice proves fatal.

"I make a brief allusion to these points in order to realize the main aim of this address—namely, the arousing and quickening of an interest in the study of morbid relations, wherein our success will much depend on our having a ruling principle for our guide, and a definite object and end in view, both of which I have endeavored to indicate. An inquiry into the symptoms, diagnosis, prognosis, and treatment of disease can not fail to be greatly facilitated by keeping ever before us the particular cause or causes at work in producing an uncomplicated disease, or in furnishing the kaleidoscope aspects of many of our cases. In one way it seems a work of supererogation to inculcate the close observance of causes; for, as a rule, the practitioner gradually comes to perceive its importance, and shapes for himself an unwritten compendium along this line. His 'experience is by industry achieved, and perfected by the swift course of time.' Automatically he seeks for the cause, and is—or should be—satisfied only when he has found it; and that he

may register his observations he is driven to an accurate system of nomenclature, which shall possess for him both an aetiological and a diagnostic value. Every advance in this direction is a positive gain to medicine; and whether we succeed in tracing a disease to its true origin, or attempt the more arduous task of disentangling the morbid web with a view of assigning its due proportion of responsibility to each factor, and so of dealing with the whole, we are engaged in the employment of a method which, if developed, may make a revolution both in the name and treatment of diseases. This is no mere fanciful theory, for it will be found that every scientific medical man unconsciously and even automatically, as I have said, finds himself perpetually engaged in practicing it, and the measure of success he enjoys as a practitioner of the healing art is determined largely by the degree to which he permits himself to be led by its light. A man may never be fortunate enough to make an abiding contribution to the science of medicine strictly so called, and yet may all through his life have given the public the practical benefit of his originality and independent thought in the adoption and practice of self-taught rules without the aid, or even in spite of the trammels, of hampering traditions. And there are many such among us who whisper their worth in the ear of the public, but seldom seek to proclaim it from the literary house-top. To him belongs the credit of benefiting mankind by the practice of unformulated methods, and he shall have his reward: *Denn Gott lohnt Gutes hier gethan, auch hier noch.*"

The Examination of Cholera Discharges.—With the same appreciation of the value of early and positive diagnoses that has been shown by our city board of health in the matter of diphtheria, the *British Medical Journal* for July 29th says editorially:

"With cholera at our gates, it behoves us to be prepared to recognize the disease in its very earliest stages. So far as our knowledge goes at present, there is no method that is at once so rapid and so reliable as the determination of the presence of Koch's comma vibrio in the alvine discharges of the patient. In a short note on a communication published by Koch in the *Zeitschrift f. Hygiene*, we indicated briefly the methods on which a skilled bacteriologist relies for his diagnosis, but now that a case has already appeared in this country, and as a medical officer of health may be called upon at any moment for a definite opinion, a further and more detailed account of the modern method by which the specific nature of choleraic discharges can be determined is certainly not out of place in our columns. These methods of diagnosis are (a) by the microscope, (b) by cultures, and (c) by chemical tests, or by combinations of two or more of these methods.

"(a) By the microscope: A drop of the contents of the intestine in the preferably fresh condition is mixed with a drop of tap water and spread out on a microscope slide, with a platinum needle or a glass rod, a cover glass is placed in position, and the specimen may be examined at once. In the words of the note to which reference has already been made: 'In about half the cases examined, a rapid microscopic examination of the materials forwarded to him from various parts of Germany enabled him to telegraph almost immediately that the patient from whom the dejecta had come was affected with cholera. In the mucous threads and flakes examined under the microscope the cholera bacilli are arranged in groups, in which the single bacilli run parallel to one another like a shoal of small fish following one another in a stream of water. This appearance Koch regards as so characteristic that where it is present he does not hesitate to form a diagnosis.'

"To prepare a stained specimen, a trace of the intestinal discharge is in the same manner mixed with a drop of water and is then allowed to dry at the temperature of the room. The cover-glass may then be passed two or three times rapidly over a spirit lamp or gas flame, after which it should be stained for a minute or two with a watery solution of fuchsine or Spiller's purple, and then carefully washed with clean water. It may be examined at once. The cholera vibrio in such preparations is usually seen in the form of slightly curved (sometimes straight) rods, with an average length of 1.5μ ($= \frac{1}{10000}$ of an inch, or half the diameter of a red blood-corpuscle), and a breadth of about 0.4μ . The ends of the rod are usually somewhat rounded. From its curved shape the organism has been described as a comma bacillus. These curved bacilli appear to be formed by the segmentation of a

spirillum, and the segments may consist of a single comma-shaped organism or of two curved in the same direction so as to form a more or less complete circle, or with the curve reversed so as to form an S-shaped organism. When stained with Spiller's purple the organism appears to be somewhat plumper than when stained in fuchsine. As soon as the material comes to hand a particle should be thoroughly mixed in a test tube with a solution of one per cent. peptone in a one-per-cent. solution of common kitchen salt. This may be sterilized by boiling for an hour in an ordinary saucepan, but if it is to be used at once, this is not necessary; the mixture is simply filtered before the suspected cholera material is added. A drop of the inoculated mixture is then placed on a square cover-glass, which is inverted and supported at its four corners by small fragments of sealing wax, which are fixed to a microscope slide. Slips of moist blotting paper are laid around the cover in order that the air in the chamber may be kept charged with moisture, so that evaporation from the hanging drop is prevented as much as possible. This preparation is now placed in a warm damp place. At the end of five or six hours the preparation may be examined, and if there are any cholera vibrios present they multiply so much more rapidly in the above solution that characteristic spiral threads, single bacilli, etc., may be seen in enormous numbers, especially near the surface of the drop—that is, away from the cover-glass, before other organisms have time to develop to any marked extent. Instead of the peptone-salt solution, dilute bouillon may be used for these hanging-drop cultures, but in this case the process goes on somewhat more slowly, and threads are more frequently formed.

"(b) By cultures: The above hanging-drop culture should properly come under this heading. If time were a matter of no importance the gelatin-plate method would in most cases give sufficiently accurate results in twenty-four hours. Plate cultures are made in the ordinary fashion, and then at the time mentioned there appear small white points, many of which are at first deep down in the gelatin; after a time these bring about liquefaction of the surrounding gelatin, especially those in contact with the air, which exhibit a peculiar funnel-shaped depression with a clear, glossy-looking margin, and in the center (when seen under the microscope $\times 100$) is a somewhat coarsely granular gray or grayish-yellow mass; and as the liquefaction goes on there appears a peculiar pinkish tinge at the margin of the irregular granular colony. The surface of these colonies is sometimes said to resemble a layer of minute fragments of broken glass. At the same time that these plate cultures are made a flask containing dilute sterilized bouillon, one part bouillon to two or three parts of water, or the peptone-salt solution above mentioned, should be inoculated with a small quantity of the cholera material. This may be at once placed in an incubator at a temperature of 38° to 39° C. At the end of eleven or twelve hours in the case of the broth culture, or of seven to eight hours in the peptone culture, the cholera organisms greatly outnumber most of the other putrefactive organisms, especially near the surface of the culture medium, where a somewhat wrinkled film, consisting almost entirely of cholera organisms, is formed. A little of this film may be inoculated into another flask containing broth or peptone, or plate cultures may be made. Microscopic preparations should also be made and examined. The cholera organism, which appears to have a very great affinity for oxygen, comes to the surface, there grows rapidly, and gets so great a start of the other organisms that at this stage we may have it in an almost pure culture.

"At the same time that the inoculation is made into the peptone, the following method, which in the hands of Freymuth and Lickfeld has given rapid and very reliable results, may be used; they are able, by their method, to diagnose the presence of cholera bacilli within six hours. On a number of microscopic slides they spread a thin layer, while still warm, of the following nutrient medium: 900 c. c. of broth, 12 c. c. of glycerin, 12 c. c. of gelatin, and 30 c. c. of agar, which, on cooling, solidifies; over the solidified surface they paint with a camel's-hair brush this same warm fluid nutrient medium, to which a few drops of the cholera material have been added; the slides are then placed in Petri's dishes (flat glass dishes with covers) and are kept at a temperature of 38° or 39° C. for several hours. These slides can be examined under the microscope from time to time with comparatively high powers.

"At the end of five hours and a half with the Zeiss AA or even D objective, and ocular No. 2 or 4, there are seen well-marked colonies of various sizes and colors. (To the naked eye we have an appearance somewhat like a layer of dust on the nutrient medium.) Their apparent diameter varies between a half and two millimetres, while they vary in color from a clear steel-blue to a dull brown. Most of them have the appearance of a distinct mosaic, in which are dark streaks and points; a few of the blue colonies are, however, almost homogeneous, while others appear as though they had been dusted with dust. The outline is usually slightly irregular, and somewhat finely indented. Under the microscope the organisms of which these colonies are composed have all the characteristic appearance of the cholera bacillus, as found in the intestinal contents. The great advantage of this method is that a diagnosis may be arrived at in a comparatively short space of time, and is certainly an addition to the bouillon, salt solution, and ordinary plate-culture methods.

"From the colonies, either on gelatin or on the agar slides, gelatin-tube cultures may be made which have the following characteristic appearances: There very quickly grows along the path of the inoculation needle a somewhat regular growth rather more marked near the surface. At the end of twenty-four hours liquefaction goes on in a funnel-shaped area near the surface, and a little clear air bubble (a very characteristic appearance) is seen; later the growth settles to the bottom of the funnel, and ultimately, on the third or fourth day, the funnel-shaped area has become very well marked, and contains a clear fluid gelatin, at the bottom of which is collected a white or grayish-white mass, while along the track of the needle, where a little tube of liquefied gelatin has formed, the growth, as the funnel becomes deeper, gradually settles down into a kind of a coil or spiral, like a coil of white string lying in clear water.

"The true cholera bacillus may be distinguished from Deneke's cheese spirillum and the Finkler and Prior spirillum, both of which have been said to resemble this organism, by the fact that in the case of these latter organisms the liquefaction takes place much more rapidly, and the liquefied gelatin, in place of being clear, becomes more or less turbid, and in the case of the Finkler and Prior spirillum the peculiar ring is seldom present in the liquefied area.

"Agar tube cultivations may be made either directly from the faeces, or, better still, from the films that are formed on bouillon, etc. A small portion of the wrinkled film is taken at the end of eight or twelve hours, as the case may be, or from the colonies developed on the slides, on a platinum needle flattened to form a kind of small spatula. This, once charged, is drawn several times over the surface of an oblique agar mass in a test tube, and then in a similar way, without being freshly charged, over the agar in a second tube; in this way we have formed eight or ten streaks, each succeeding one containing fewer and fewer of the seed organisms, so that when we come to the fifth or sixth streak only discrete colonies, from which cultures may be made or which may be examined under the microscope, are developed.

"The flask cultivations in bouillon or peptone as recommended by Dunham are excellent for giving the cholera-red reaction—the one chemical reaction which is generally relied upon to determine the presence of the cholera organisms at an early stage. For this purpose the peptone solution appears to be superior to any other. At the end of about eight hours, if a small quantity of pure sulphuric acid be carefully added to a portion of the culture, there is developed, when the two fluids meet, a reddish violet color, which is spoken of as the cholera-red or indol reaction. This is not an absolutely specific test, but, along with the microscopic examination and the culture tests, it is of very great value, as by it we are enabled to determine the presence of the cholera organism, even when intestinal organisms are present, none of the spirilla in the intestine giving the same reaction, the only one that is known to do this being the *Vibrio Metschnikovi*, which has not yet been found under such circumstances. The bouillon must be allowed to incubate for twelve hours, when the same reaction may be obtained. It may also be obtained with a gelatin culture in which there is a quantity of peptone.

"Although most medical men in practice, with time, a little ingenuity, and a small amount of apparatus, might determine for themselves

in a very short time whether or no they are dealing with cases of cholera in which Koch's 'comma' bacillus is present, many will find it impossible to obtain sufficient leisure in which (especially at the time that the work must be done) to perform the experiments, while others again will be anxious to have their own results corroborated by men who are actively engaged in bacteriological investigations."

"Those who wish to send specimens for examination should in the first place send the material as fresh as possible in a well-stoppered bottle, the outside of which should be carefully washed with carbolic acid after the stopper has been put in position, and then dried, and the stopper luted in with paraffin, tied with string or wire, carefully sealed, and securely packed in a stout wooden box. As soon as it has been determined to send off a specimen, a telegram should at once be sent to the laboratory to which the specimen is being dispatched, in order that preparations may be made for the immediate examination of the material."

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

THE SPHYGMOGRAPH

AS AN INSTRUMENT OF PRECISION.

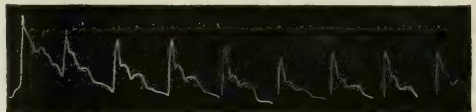
By J. S. LEONHARDT, M.D.,
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THE pulse has long been regarded as affording much valuable information in the diagnosis and prognosis of diseases. Chinese physicians are known to depend almost entirely upon it, professing to distinguish by the sense of touch alone several thousand distinct varieties. It has not been so very long ago that Caucasian professors discoursed learnedly on forty or fifty different kinds of pulses, embracing as many changes in speed, strength, volume, etc., all of which were much plainer on the printed page than when enunciated from the rostrum or searched for clinically. To Vierordt is generally conceded the honor of having rescued from a maze of confusion this important department of practical medicine. In 1855 he constructed a sphygmograph in which the movements of an artery were communicated to a lever which graphically recorded them. He was preceded, however, in a measure by Stephen Hales, an English clergyman, who in 1733 constructed an instrument for hydraulic and hydrostatic experiments on the circulation. He called his apparatus a "pulsanometer." Galileo, the founder of experimental science, is said to have made a "pulsilogia," but no description of this invention is extant. It remained for M. Marey, the master of the graphic method in physiological research, to invent a sphygmograph in 1860 that ushered in a new era in medicine. Numerous modifications of the original instrument have since been made, but, so far as I know, they all belong to one of two classes: (1) Those in which the marker moves at right angles to the movement of the receiving surface, such as instruments of the Dudgeon, Pond, and Landois pattern, and (2) those in which the recording needle always describes the arc of a circle whose radius is equal to the length of the lever moving around a center and in a plane parallel to the direction of the recording slide, as in instruments of the Marey, Holden, and Key type, as well as some of the tambour machines. These instruments have all done their part in extending our knowledge of the circulation, whether in a state of health or disease or during the use of measures or medicines for therapeutical or experimental purposes. The modern and perfected sphygmograph has as effectually displaced the *tactus eruditus* of the past as the stethoscope has the naked ear, the thermometer the open hand, or the microscope, ophthalmoscope, and laryngoscope the unaided eye. It is to these instruments of precision that modern medicine as a science owes so much of its imperial greatness, all of its magnificent possibilities; it is wholly due to them that its stately progress has been a veritable triumphal procession for half a hundred years at least.

The object of sphygmography is to measure the amount and duration of expansion of a pulsating artery, with the rapidity and intervals of these pulsations, to indicate the

behavior of the arterial current, as well as the vessel confining it, and to describe these things in its own cryptoglyphs on a receiving surface which may be preserved for reference and comparison. In order to accomplish all this in a practical and satisfactory manner it is essential that the instrument be compact in structure, easy of application, capable of ready adjustment for pressure, so that the best definition of pulse curves may be easily and quickly obtained, and constant in operation, and that it produce a tracing of known magnification and on a surface propelled at a known and uniform rate of speed.

A finished tracing is called a sphygmogram and consists of a series of curves representing pulse waves, any one of which from a given point on any curve to a corresponding point on the succeeding curve represents one complete cardiac cycle. The tracing of any single pulsation in a normal sphygmogram consists of the following events, beginning at the lowest point in the tracing and reading it from left to right: An almost vertical line starting from a level known as the basal or respiratory line. The left ventricle having discharged its contents into the arteries, a blood wave is produced, which, suddenly distending the partially filled vessel, throws the marker or needle upward. The inertia of the lever causes the needle to be carried farther than the distention of the artery would have carried it, and after having reached the highest point it rapidly descends until caught by the flow of the arterial tide corresponding in time with the formation of the first notch. This is the first event, the commencement of which is synchronous with the opening of the semilunar valves of the aorta and the end with the closure of the auriculo-ventricular valves.



It is termed the percussion or systolic stroke or wave, upstroke, primary ventricular wave, etc. The acute angle formed by the upstroke and its sudden descent as far as the first notch is the apex or summit of the percussion or systolic wave or stroke. The next event is a second wave, known as the predicrotic or first tidal wave. It is caused by the closure of the aortic valves, which agrees in time with the formation of the second notch, which therefore marks the end of the systole. The next important event is another wave, the dicrotic or aortic (*Rückstosswelle* of Landois), and is due to the recoil of the column of blood against the closed aortic valves. Sometimes a fourth wave may be seen; it is also due to a recoil and has no special significance so far as is known at present. This, briefly, is the generally accepted translation of a normal sphygmogram, the several events of which can be readily seen in the figure, which represents a tracing taken of the writer by himself with a Dudgeon sphygmograph, under a pressure of five troy ounces, over the left radial artery, beating sixty-eight times a minute. Any sphygmograph in proper working order will show these several characteristics in a healthy

pulse. Curves drawn upon a surface moving at different rates of speed, while apparently quite unlike, nevertheless record exactly the same facts. The distance between pulse curves depends, of course, upon the rate of the pulse and the speed of the recording surface; it is shorter when the pulse is rapid or the motion of the cardboard slow, and greater when the pulse is slow or the motion of the paper fast. Take, for example, a pulse beating sixty times in a minute: traced with an instrument moving the recording surface at the rate of an inch in a second, it will show one curve to the inch; if the pulse beats a hundred and twenty times in a minute, and the motion of the cardboard is not increased, it will show two to the inch; let the cardboard be moved two inches in a second, and a pulse of sixty to the minute will show one pulse curve to every two inches, etc. Therefore if the pulse rate by the minute or the movement of the recording surface by the second is known, either will furnish a good and sufficient basis of comparison between different sphygmograms regardless of the make of instrument with which they were drawn, the only requirement being that the instrument be true to itself, that the operator be competent to manipulate the thing, and that in drawing his ordinates, for the purpose of measuring events, he bear in mind that they must always be parallel to the signal line, whether that is the arc of a circle, as it is when made by instruments of the Marey style, or a straight line, as it is when made by instruments of the Dudgeon class.

The reader will understand from the foregoing why it becomes almost necessary to notice a few remarks made by Dr. Hammond in a recent article in reply to my criticism of his contribution under the title *Cardine*, which appeared in a recent issue of the *New York Medical Journal*. Sphygmography needs no defense at my hands, but Dr. Hammond has given expression to some remarkable statements and ideas, which for his sake I wish he had never committed to print rather than for fear of any damage they may do the graphic method of research. True, I do not carry the ghosts of three or four professorship scalps at my belt, neither am I, or ever have been, a member of some fifteen different societies, domestic and foreign. If Dr. Hammond "can not boast of having several thousand sphygmograms," neither can I of having used "Marey's and Pond's sphygmograms, the one for over thirty years and the latter for more than twenty years." I have seen Marey's instrument in all its Parisian glory; it is a cumbrous affair, difficult of adjustment and impracticable for office work, and at its very best makes only "a tolerably good tracing." It was introduced before the Medical Society of London in 1865 by Dr. Anstie. Dr. Hammond is to be congratulated upon having introduced it into the United States several years before Dr. Anstie did as much for England. It is a little strange, however, that Dr. Hammond should have been able to use Pond's instrument three or four years before it was invented. It is still more strange that Dr. Hammond should have used any sphygmograph "for over thirty years" and still believe that a less vertical upstroke shows increased force, when exactly the reverse is true. It is most strange that he could use a sphygmograph all this long time and yet believe that the distance between any two

upstrokes is shorter when the recording surface moves rapidly and longer when it moves slowly, the reverse being true. This must certainly be a "matter of opinion," for it can not be a matter of *fact*. I trust he did not form this "opinion" from reading the French classic *Physiologie médicale de la circulation du sang*, Paris, 1863. I suppose Dr. Hammond will again accuse me of having violated the decorum of controversy and committing "a solecism against good manners"; if so, I beg him not to trouble himself with seeking an excuse for my breach of etiquette this time.

In regard to the sphygmograms illustrated in the issue of this journal for April 22, 1893, which, it is alleged, show the favorable effect of "cardine" as a heart tonic, I desire to reiterate what was said in my criticism of the article—that they are not normal sphygmograms, and that they are unworthy of the least confidence as indicating anything favorable in the circulation—and I challenge their defender to prove them healthy tracings by any rule of sphygmography or process of reasoning whatever. For him to say "I say they do" is no answer. At first I did not believe the cuts were exact reproductions of actual sphygmograms, but he says "they are," and that settles it. One may be an amateur sphygmographist and not find it an impossibility to send tracings long distances "without the great risk of having them obliterated or seriously damaged before they reach the engraver." While I do not profess to know all that is to be known on the subject of sphygmography, I am in possession of a few facts "that every schoolboy ought to know," and they became mine before Nature crowned me with "the silver'd livery of advised old age."

A CASE OF SYMPHYSIOTOMY.

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Mrs. S., primipara, patient of Dr. House, was in labor for two days, when I was called in consultation. Forceps delivery had been tried three times, but without any success. It was impossible to turn.

On examination, it was found that the head was not engaged at the superior strait. The pelvis was found to be slightly deformed, the transverse diameter being diminished while the antero-posterior was lengthened.

The child's scalp was contused and swollen, but it was thought that by severe lateral pressure with the blades of the forceps the head might be compressed enough to deliver. Neither Hodge's nor Elliott's forceps would hold with the powerful traction that was exerted. As the child's head had just ceased to beat, symphysiotomy was advised and performed.

The operation was performed by making an incision two inches long over the symphysis, through the skin and fat. Then the muscular tissue was pushed aside with the finger and a probe-pointed bistoury passed behind the ligaments and the cut made downward and forward, until the ligaments were felt to give way. The incision in the skin extended from a quarter of an inch from the edge of the commissure upward for two inches. This was done to keep a mucous surface out of the incision.

As soon as the ligaments were severed the forceps was ap-

plied and the child quickly extracted. It was dead; and as the mother needed prompt attention, no effort was made to resuscitate the child.

In the extraction of the child the pelvic bones separated fully three inches and a half. The separation was so great that the vagina was torn and a communication was thus made from the vagina into the incision. No attempt was made to stitch the ligaments together. Deep silk sutures were passed through the skin and muscular tissue.

The perineum had been ruptured through into the rectum, due to the slipping of the forceps. No attempt to repair this damage was made at this time. This was subsequently repaired by Dr. House. At the present time, two months after the operation, the patient can walk about her room, there being no motion between the bones.

The patient had no untoward events except a stitch abscess and a slight rise of temperature for a week.

THE CONVALESCENCE FROM FRACTURES.

By GEORGE W. KING, M.D.,

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AUTHORITIES lay but little stress upon this most important period in the treatment of fractures. The proper reduction and retention of the fragments of a broken bone is considered the principal thing to insist upon. The fear of shortening or angular deformity has no doubt been responsible for many imperfect recoveries. It has prompted too long continued immobilization with resulting loss of function that in many cases is never wholly regained.

We are told in detail how bones unite, how special fractures should be treated, the length of time required for union to take place, etc. If these were all the facts to be considered we might with propriety omit any further investigation of this subject. Unfortunately, such is not the case, and we must continue our efforts to perfect the methods at hand.

The many conditions and influences that may hasten union of bone, such as age, location of fracture, ability of reduction and retention, general condition, and previous habits of the patient, are well known and preclude the possibility of any definite rule for guidance as to the length of time immobilization should be employed. Each case must be left to the judgment of the attendant.

Many surgeons, doubtless the majority, are inclined to assume that their duties are ended upon the removal of the retention apparatus. This is certainly a dangerous practice and can not be recommended in any case. Numerous instances have occurred under my own observation where an excellent result has been compromised by want of care after removal of the splints and bandages.

The production of curves that Nature never intended is neither creditable to the surgeon nor useful to the patient.

We can only avoid such unpleasant complications by familiarizing ourselves with the different stages in the progress of recovery. No difference of opinion exists among surgeons as to the advisability of immobilization in all traumatic ruptures of bone. No exception is made in

cases where there is no displacement at the time of injury. Common prudence suggests this course as a preventive measure, for no one can tell what harm movements of the patient or muscular contraction may do.

Practically, then, we have to deal with the effects of immobilization during the convalescence in every case of fracture. The number of cases presenting themselves to the surgeon to obtain relief by operation months, even years, after the injury, is greater than physicians who do not undertake surgical cases are aware of—far greater, indeed, than it should be. Much better results are possible if we choose to adopt methods based upon a thorough knowledge of the processes involved in the healing of fractures.

The condition of a limb after being immobilized for several weeks is one of complete helplessness. The appearance is more or less characteristic, the whole limb shrunken, the muscles lax and without resistance, the skin smooth and glossy.

Muscular atrophy is nearly constant, though varying in degree; it is not limited to the injured part, but extends to the superior and inferior portions of the limb.

Recovery from this condition is very slow. Cases have been cited in which, some years after, there still existed a marked degree of difference in size between the healthy and injured limb. The pathology of muscular degeneration subsequent to fracture is not positively known. Whether compression and immobilization are alone responsible for it requires further proof.

A sufficient number of experiments upon healthy limbs ought to demonstrate how much is due to this cause. I am not aware of any particular evidence in this connection, aside from that furnished by cases of fractured femur, in which both limbs are included in the immobilization apparatus. It is stated upon good authority that the atrophy is greatest in the injured limb.

Increased nutrition incident upon the formation of the callus is thought by some to impair the general nutrition of the limb. Observation and experience fail to sustain this theory. Contusion of nerve filaments, inducing neuritis, has been named as a cause. Whatever may be the true pathology, it is evident that disuse of a limb is an important factor in producing loss of function. We know that muscles deprived of their normal stimuli are poorly nourished, and degeneration of their fibers takes place.

Other changes to be mentioned relate to the venous circulation in the injured part; to these are due some of the disagreeable symptoms occurring at this time, notably the oedema that usually persists for an indefinite time and becomes troublesome when the limb is pendent. To what is this abnormal condition of the circulation due?

Can we explain it by the vaso-motor theory, or consider it purely mechanical? At the seat of injury there must necessarily be extensive rupture of the veins, which would naturally affect the return current through the part. Probably many of the smaller veins are obliterated, in some instances by pressure, in others by thrombi that effectually obstruct the vessels. In consequence of this mechanical interference, swelling occurs and persists until collateral

circulation has become sufficiently established to empty the vessels. Perhaps the complication most to be dreaded in the secondary stage is that of stiffness of the joints in the vicinity of the fracture. Much of the disability in the early convalescence is due to this cause; the tendons no longer glide smoothly as in health, the limited amount of motion is painful in the extreme, and the joint, like a rusty hinge, is unfit for service until its freedom of motion is restored.

How shall we treat these conditions? It is not sufficient to simply tell the patient to use the limb, for, when he attempts to follow this advice, he is quickly made aware of its weakness. Every movement is painful, and he is for this reason more apt to desist from his efforts than to persevere, and is therefore too willing to trust to time to work a cure. We know such reasoning is fallacious, as we have seen; there must be a restoration of the circulation to nourish the part, the muscles must be stimulated to action, and the joints freed, before we can hope for any progress toward recovery. It is therefore a very unwise procedure to trust this important period to the patient himself. It is at this time we are able to do more toward restoring the normal functions than at any subsequent time. Experience teaches us that these cases are especially liable to become obstinate after several months have elapsed. There remains to consider what measures to adopt whereby we may avoid the many complications, or at least reduce them to a minimum. The indications are plain enough and have already been shown in referring to the effects of immobilization. From careful investigation, I am led to believe that massage promises the best results in the conditions named. By massage I do not mean the promiscuous rubbing usually indulged in. Neither the rough, clumsy manipulations that endanger the continuity of the partially formed callus, but the light, skillful touch of the "masseur" applied scientifically. Of course, it is unreasonable to suppose that physicians are ordinarily masters of this art, yet enough of the science ought to be acquired with but little trouble to carry out the treatment here advised. The advocates of the massage treatment of fractures without immobilization claim good results—equal if not superior to that obtained by the time-honored custom by splints, extensions, etc.

They bring to their aid in proof of the correctness of their views examples furnished by the history of fractures among animals, where immobilization is impossible and yet union takes place. Admitting this to be true, I imagine few of us would care to take the risk of treating fractures without employing some retaining device until the danger of displacement had passed.

When shall we begin the use of massage?

At the very earliest moment that it can be done without causing displacement. A judicious selection of a retention apparatus that will allow free access to the limb without removal of the entire dressing is an advantage, particularly at the beginning of treatment. My preference is for the plaster-of-Paris splint, for it can be readily opened and closed without deranging the fragments. By this plan we shall be able to not only combat successfully the degenerative changes in the muscles, but to keep the

circulation in its proper course, thereby aiding the rapid absorption of excessive effusion that so frequently delays the normal process of healing. The same treatment applied to the joints keeps them pliable and ready for use when the time comes to resume their functions. With the nutrition of the limb provided for, the articulations guarded against abnormal conditions, we shall have done our part toward insuring results of which we need not be ashamed.

729 FIFTH AVENUE.

A PREHISTORIC DENTAL ANOMALY.

BY A. L. BENEDICT, M.D.,
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I wish to record an instance of supernumerary tooth occurring in a skeleton—presumably that of an Indian—which was exhumed from a knoll near an old Indian cornfield on the east bank of Canandaigua Lake. Part of one or two other skeletons had previously been removed by the owner of the farm. No other remains were found; but the gravely subsoil had been disturbed in an area six or eight feet in diameter by the insertion of clay and sand to the depth of about four feet. Throughout this inserted soil, charcoal (mostly oak with one pine-knot) and calcined stones were found. At another spot in the same knoll there was uncovered a fireplace, circular and spherically convex, about three feet in diameter. A section through it showed four inches of charcoal and an equal thickness of baked clay. Immediately around and beneath this fireplace was shaley sand.

The skeleton lay on its left side, facing the west, the head pointing south. The arms were bent so as to bring the hands together near the face. The thighs were at right angles to the trunk, the legs flexed as closely as possible to the thighs. Judging from the development of the bones, the sutures, and the teeth, the skeleton was that of a medium-sized adult male in early middle life.

The supernumerary tooth was shaped like a stunted canine. The root, which was rounded off, projected slightly from the alveolar arch above the first right upper incisor. The crown lay in the anterior palatine canal, which was unusually large. This tooth was probably entirely hidden during life, though its possessor may have wondered what caused the little projecting knob under the gum. Certainly there was no caries or necrosis to indicate that a sinus led to either root or crown. The rest of the teeth were not remarkable, although some were decayed and a few missing. This case is in harmony with the observation that supernumerary teeth usually occur at the second dentition, in the upper jaw, and in connection with the incisors or canines.

The Nineteenth Annual Meeting of the Mississippi Valley Medical Association will be held in Indianapolis on Wednesday, Thursday, and Friday, October 4th, 5th, and 6th. A general session will be held each morning, and the afternoons will be devoted to section work. There will be three sections: One in General Medicine, one in General Surgery, and one in Obstetrics and Gynecology. The last mentioned has been added since the last meeting.

A CASE OF
COMPLETE GLOTTIC SPASM IN AN ADULT,
FOLLOWED BY
UNCONSCIOUSNESS AND PROLONGED DROWSINESS.*

By W. PEYRE PORCHER, M.D.,

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CHARLESTON, S. C., ETC.

As I have been able to find records of only twenty-seven cases of laryngeal vertigo or complete glottic spasm in adults, and on account of marked implication of the brain centers as shown by torpidity of bowels, persistent drowsiness, and other symptoms, which are novel, at least to the writer, I have ventured to make the following brief report of this case:

The patient was a maiden lady, aged fifty-two years, at the menopause. She was brought to my office for the supposed removal of large tonsils on account of difficult respiration at night, with frequent terrifying nightmares. She attributed this condition to an attack of grip which she had had several months before.

Since that time the paroxysm had not been severe, but her attendants stated that she would be awakened by the cough after dropping to sleep, and it was described by her as a feeling of choking or gagging in the throat. There was no dyscrasia, except such as resulted from a slight malarial cachexia. She was of a very sanguine temperament, inclined to plethora, and so nervous that she expressed the greatest alarm when requested to enter my dark room. She could not go into a church or other crowded place without a sense of fear and oppression.

On examination, her tonsils were found to be so small that they could not be caught in the grasp of either of two improved amygdalotomes. They were, therefore, thoroughly cauterized with the galvano-caustic knife.

She was ordered a simple antiseptic gargle of listerine and water, and cautioned against taking any hot food, coffee, etc.

The first night after the operation she had no great pain or unusual difficulty of breathing. The next morning she attempted to drink some coffee which she said was not hot. Upon taking the first teaspoonful she complained of a peculiar giddiness and rushed to the window for air, but fell back upon the floor unconscious. The attack lasted but a short time. On my arrival soon after, she had entirely regained consciousness and was comfortable. As her attendants stated that she was very drowsy, ten grains each of colomel and soda were ordered to be taken at once. At the evening visit it was found that the medicine had not acted, and the next morning there had been but one slight evacuation. This, together with the persistent drowsiness which lasted for several weeks, indicated that there was marked implication of the brain centers, although there had been no return of the attacks of insensibility.

She was ordered sulphate of strychnine, one twentieth of a grain, with one grain each of quinine and iron. This dose was gradually increased until one tenth of a grain of strychnine was taken three times daily. Small doses of a saline cathartic were also given from time to time in order to keep the bowels open.

About thirteen days after the first cauterization, the left tonsil remaining still somewhat enlarged, a second application of the galvanic electrode was made to it. This was followed by most satisfactory results. She informed me that her rest

the night following had been very refreshing, without difficult respiration, pain, or nightmares.

The patient was kept under observation for about fifteen days longer. At the end of this time she expressed herself as having regained control of her nerves, and considered herself well.

On account of the well-known tendency of hot coffee to enter the larynx, and for the reason that I know of no other cause to which to attribute the sudden attack of insensibility, as there was no paralysis present, I have been inclined to regard this as a case of laryngeal vertigo or complete glottic spasm, and have so entitled it. It might be thought that the vertigo was in some way due to the menopause, but this would not account either for the prolonged stupor or the torpidity of the bowels. Cases of laryngeal vertigo have been reported in which cough has either been absent or not of any great severity, and others in which the nervous element was most prominent, but in which there were no attacks of absolute insensibility, and again other cases in which very slight paroxysms of cough would be followed by complete unconsciousness. The insensibility with slight cough, as in this instance, is perhaps best explained by the theory of McBride that the attack was preceded by a series of short inspirations followed by spasmodic expiration and a partially closed glottis. Here, also, the patient was not even aware that any coffee had actually entered the larynx, but was seized with a sudden gasping for breath, and after rushing to the window fell unconscious, as she said, "in a heap upon the floor." It is the opinion of the writer that this loss of consciousness, like aural vertigo, is a symptom of a specific disease, and should not be confused with that vertigo which results from holding the breath for a sufficient length of time, or even that which results from a severe paroxysm of cough or sneezing. It should not, in any respect, be regarded as an epilepsy, as there was never any spasm or jerking of any description at the incipency or at any time during the attack.

4 GEORGE STREET.

CLINICAL OBSERVATIONS ON THE USE OF
HIGHLAND WATER
IN PUERPERAL ECLAMPSIA, PUERPERAL NEPHRITIS
AND THE VOMITING OF PREGNANCY.

By T. J. MCGILLICUDDY, A.M., M.D.,

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THERE is nothing more important in the art of preserving health, or in its restoration when once impaired, than that a careful consideration be given to the liquid needs of the body. Neither tea, coffee, beer, nor liquor are proper substitutes for water in the dietary; yet how many patients we meet who say they seldom, if ever, drink water! and their appearance bears out the truth of the statement, with their skins either wrinkled or bloated, pasty, yellow or eczematous, with muscles wasted, of costive habit, with hemorrhoids and pruritus ani, flatulence and pyrosis, with urinary tracts scalded by small quantities of dense, high-colored urine, and either gouty or rheumatic. They are the

* Read before the American Laryngological Association at its fifteenth annual congress.

class who furnish the mainstay to a physician's practice. I have seen numbers of such patients with a variety of diseases where I am convinced that their condition was in a great measure due to the fact that they drank little or no water. The liver and kidneys can not perform their important functions without a sufficient quantity, and, where liquids are wanting, the waste of the body accumulates, and rheumatism, gout, indigestion, and many other diseased states ensue. Patients do not, as a rule, take sufficient water, unless it is prescribed by the medical attendant; and in cases of gastro-enteric catarrh, where there is very frequently no thirst, a glass of pure spring water is often distasteful to them. They generally prefer some fermented liquor, or strong tea, or indigestible coffee. The aversion for water in these cases can be overcome, and the disease often removed, by prescribing it to be taken hot on an empty stomach, or before meals, and on retiring at night.

It is very important that the water supplied to patients should be pure and non-irritating. Waters heavily impregnated with mineral salts are not fit for constant use. Distilled waters have been largely introduced lately, but they are difficult of digestion and are unwholesome from the absence of the mineral salts that are found in solution in all natural waters. The *British Medical Journal*, in an abstract, says that Professor O. Liebreich, in a paper on Artificial and Natural Mineral Waters, read by him at the Balneological Congress recently held in Berlin, states: "There is a further reason for thinking that minimal quantities of substances in mineral waters may be of importance. The salt mixture forms a whole from which no part can be taken away without disturbing the equilibrium. This shows the fallacy of the old-fashioned notion that springs, the chief ingredients of which are the same, have the same therapeutic effect, even though differing in some minor ingredients. There is no analysis so exact or sensitive as our senses—taste and smell. A perfume of musk in the air is perceived by the smell, even though it can not be demonstrated by chemical analysis. Even the best manufactured artificial mineral waters differ from the natural ones in taste and value. This difference is not easy to explain; it is sometimes found, however, that two mineral waters, otherwise identical, differ as regards electrical conductivity. As to the so-called indifferent springs, it is a mistake to speak of them as of minor value. It must be remembered that they, too, contain mineral ingredients, if only in minimal quantities, which counteract the harmful properties of perfectly pure distilled water. Even hydropathy is a mineral-water treatment; for, if the water used were without traces of mineral substances, it would be poisonous. This has been sufficiently proved elsewhere." The foregoing was taken from the editorial columns of the *Journal of the American Medical Association* for June 17, 1893. Good spring water has all the following characteristics: It is tasteless, odorless, and colorless; soft and mild to the palate; it should contain no organic matter. The carbonates of sodium, potassium, and magnesium should not exceed twenty grains per gallon. In making a selection of mineral water these points should be well considered; and, if a patient is to drink it at a spring, the surroundings

should be pleasant and elevated, with diversified mountain scenery, and with an absence of humidity. Highland water from Maine fulfills all these requisites, and is consequently an excellent water for table and medicinal use. Sir Dyce Duckworth, professor of clinical medicine at St. Bartholomew's Hospital, London, in his recent treatise on gout, indorses this class of waters. He says they are of great value in cases of chronic and atonic gout; their action is diuretic, laxative, and tonic; therefore they are more indicated in many phases of gouty disorders than the waters of Vichy and Carlsbad.

Haig, in his work on uric acid, 1892, says these waters are the best solvents of uric acid, being far superior to lithia water, which causes a minus excretion; and Sir William Roberts, in his Croonian Lectures before the Royal College of Physicians, published in the London *Lancet*, July 16, 1892, said that the gouty should avoid waters with sodium salts in excess, like the Vichy and Carlsbad, and others, and that "there are other springs of high and growing repute, in the treatment of gout, which are not open to these objections," and he then indorsed very strongly these waters.

The mineral springs of the United States are equal to any in the world, and a knowledge of the composition of many of them is essential to the practitioner. Some of them are not to be used except in extremely rare instances. Oftentimes, as is the case with some of the Saratoga waters, the composition changes from year to year, being actively purgative one year and not even laxative the next; or they may, by the injudicious erection of hotels, dwellings, and stables about them, by percolation through the soil of sewage, become contaminated and show organic matter on examination. Being convinced that, in the treatment of acute nephritis, no diuretic is as efficient and safe as a pure, light, and soft spring water, I determined to use Highland water as being especially adapted for these cases. It is an extremely light and palatable alkalo-saline water, containing no lime and having a total of but a little over four grains per gallon of the carbonates of magnesium, sodium, potassium and iron, chloride of sodium, sulphate of sodium and potassium. At the New York Mothers' Home Maternity Hospital, in nine hundred cases of obstetrics, there were eighteen cases of puerperal nephritis observed and fifteen cases of puerperal eclampsia, in which Highland water was used as the principal remedial agent without a single death occurring; and whether the water alone, or its combination with other remedial measures, was sufficient to bring about this result I am not able to determine, but I am quite sure that the water was a very important factor. The mortality in eclampsia is generally rated at about thirty per cent. In puerperal eclampsia the blood is always in a devitalized condition as a result of the uræmic poisoning. In all of the above cases I gave freely of strong beef tea (made without fat), milk, and all the Highland water they could possibly drink. In some cases hot-air baths were given, and a teaspoonful of sulphate of magnesium was also given twice daily. For the control of the convulsions, chloroform was administered in some cases. The usual prescription for all patients was fifteen grains each of bromide of potassium and

chloral hydrate, given every two hours when needed, the first dose being sometimes double that quantity. The histories of several of these cases have already been published in the *Journal of the American Medical Association* for July, 1892. The cases of albuminuria of pregnancy were placed under the use of this water, with an occasional addition of a few other remedies, and a proper diet containing a lessened amount of starchy food; there was in all of them a complete restoration of the urine to the normal. The water seemed to be of especial value where the urine was scanty and high-colored. Besides its diuretic value, it is also useful in stimulating the functions of the skin. The disease being one causing great debility, the small quantity of carbonate of iron it contains, in combination with the alkaline salts, as recommended by Professors Flint, Thomson, and Draper, antagonizes the impoverishment of the blood which takes place. In promoting the urinary secretion it relieves the renal congestion. Only the mildest and blandest of diuretics are useful in these cases. One patient who came in, and almost immediately became unconscious, with repeated attacks of convulsions, and who was unable to take the water or any other treatment, except chloroform, died after a few hours. The following case of puerperal convulsions demonstrates the beneficial effect of Highland water in this disease:

Mrs. S., aged twenty-three, when seen before labor was found to have oedematous ankles and albuminous urine. In the morning, the patient having had severe labor pains during the night and the cervix being fairly well dilated, while I was preparing to use the forceps, she suddenly said: "I can not see; my sight has entirely left me," and almost immediately was taken with a genuine eclamptic seizure. A hypodermic of morphine was administered, the forceps applied, and a large child readily and safely delivered. She remained temporarily blind for several hours, and was seen by Dr. Charles H. May, who, after careful examination, found nothing whatever. There were no changes in the fundus except a slight cloudiness of the disc, which meant nothing. It was, I believe, a functional vasomotor paresis from disturbance of the retinal blood supply. After a few days the patient regained her sight; the albumin persisted in the urine, but under the administration of Highland water as a diuretic and a restricted diet, she made an uninterrupted recovery, the albumin completely disappearing.

This condition of puerperal amaurosis is an extremely interesting one. In the four cases I have had in my practice, fortunately the blindness has only been temporary. It came on at the time of delivery, or was noted soon after, with intense headache and other symptoms of acute puerperal nephritis. In all these cases the urine was highly albuminous. Patients with some degree of blindness are more common, and generally after delivery their recovery is rapid, the sight being completely restored in a few days. Two of my patients were extremely stupid and seemed to be in a partially comatose condition. None of them realized the gravity of their situation.

In the excessive vomiting of pregnancy we relieve portal and pelvic congestions, which are often the cause of this distressing condition, by removing hepatic engorgements and obstructions. This is best accomplished by the stimulating effect of hot Highland water taken an hour be-

fore meals and half an hour before retiring at night. Besides the use of narcotics and sedatives in this condition, a careful diet should also be enjoined, especially one quite free from an excess of carbohydrates.

TWO CASES OF LAMINECTOMY.

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CASE I.—J. R., Alsatian, fireman, aged forty years. Four years and a half ago the patient was forced to jump thirty-five feet from the roof of a burning house. He landed on both feet and fell backward and to the right, remaining conscious until he was carried across the street, when his senses failed him for a few minutes. He had a tingling sensation in the spine and in both limbs continuing several hours with varying intensity, most severe and lasting in the right limb.

The patient was first seen by Dr. W. E. Jeffries, and then by the family attendant, Dr. Guido Bell, who has treated him intermittently since, and to whom I am indebted for the case and the supervision of the following history:

The first day the patient was very restless and hard to keep in bed. Once he eluded his attendant and walked across the room. He voided urine and feces voluntarily, without pain or admixture of blood. He had great pain in his spine, markedly in the lumbar region. A severe pain in both hips and inability to walk suggested a lesion about the hip joint. He had much thirst during the first twenty-four hours. On the second day movement of his body elicited intense "whirling" pain about the upper lumbar vertebra. Light rubbing relieved this for a time. This pain was constantly present for about a year. The patient rallied slowly, being able to walk only with difficulty and with pain in his back after several weeks. Three months after injury a severe coccygodynia arose, followed by a swelling like a bruise at the lower end of the spine. This pointed like an abscess but finally disappeared, without opening, under soft-soap anointment. Coccygodynia was present afterward whenever the patient got up after sitting awhile. His right limb was noticed to be numb, cold, and weak, and was dragged in walking. For a while he suffered nausea and spit blood. Later this ceased, and he passed blood from the bowels.

I first saw the patient two years after the accident, being consulted by Dr. Bell. The patient suffered acute pain in the coccygeal region. The sacro-coccygeal joint was found tender to the touch, and painful on passive motion. The coccyx was rigidly drawn to the right side. Pressure elicited pain and tenderness in a spot covered by a half-dollar over the upper lumbar vertebra. An examination under chloroform showed deflection of coccyx relieved, and no evidence of disease about the pelvis or rectum. The dilatation of the sphincter ani muscle gave permanent relief from the coccygeal pain. No more hæmorrhage from the rectum.

Ever since the accident the patient felt unsettled and restless, and seemed changed in his nature. His semblance to health prevailed on his friends to discredit his complaints of suffering and unfitness for work. He was repeatedly induced to take up light work, such as tower watcher and telephone attendant, without ability to endure. He was much afflicted with malaria, and had one attack of grippe. He had repeated attacks of weakness in the knee, and an increase of motor (extensor and adductor) paralysis of the right limb, being unable to bear the weight of his body on this limb. This aggravation of symptoms commonly arose in the springtime. At first it

lasted a few weeks at a time; last year about four weeks, and this year has lasted upward of three months uninterruptedly. In walking, the patient employed at first a cane; later, crutches were necessary. Intense occipital pain and pressure, often reaching forward to the right supra-orbital region and including the right ear, existed frequently. He often became confused and dazed; this was attended by burning of the eyes and difficulty in articulation. Recently these symptoms increased and he was irritable, querulous, and unjust. Severe pain and hyperæsthesia in the right inguinal region, at times accompanied with difficulty in breathing and nausea. Within the last year the right arm steadily grew weak, cold, and numb, and its painfulness interfered with sleep. *Petit mal* developed, starting with a peculiar sensation in the lumbar region. Usually the patient had time to call his wife before unconsciousness supervened. No twitching in these attacks. Pain in the right hip and limb, and attended with a prickling sensation, was constantly present though varying in degree. The right heel was hypersensitive. The patient was painfully sensitive to the concussion of a door slammed or of a heavy step crossing the room; "it would go right up the back." After retiring at night the right leg often jerked, continuing for an hour. Repeatedly the muscles of the back and abdomen participated. The sexual function remained unimpaired throughout; it effected fecundation twice since the injury. For a while the sexual appetite was increased. Frequently, even when at his best, after sitting quietly for a while, on attempting to get up the patient found himself without the use of the right limb for a period of five minutes; "it felt not like numbness nor like sleeping."

For a while the patient felt the muscles of the limb were too short, or as if they were clothed in wet hose; he never had the sensation of a cord around the body. Various doctors and remedies were tried in time. Blistering of the spine, hot mineral bathing, electricity, nerve sedatives, etc., were tried without effect. A jacket of plaster of Paris or leather was worn during the last two years and gave him comfort, though no cure.

The patient was referred to me a second time in May, 1892, by Dr. Bell, who suggested the propriety of surgical treatment. The symptoms were steadily increasing, physically and mentally. Crutches were necessary for locomotion; the right limb could not bear the weight of the body, owing to the extensor paralysis; the limb was dragged in walking. While sitting he could not cross his right limb over the left without the aid of his hands. Sitting, the patient is most comfortable in an arm-chair and resting on his right side and elbow. His sleep is heavy, dreamful, and unrefreshing. He takes neither alcohol, tea, nor coffee. The appetite is diminished. Pressure on the vertebrae elicits great tenderness over the spine and the articular processes of the second lumbar vertebra, and evokes cries, and contraction of the muscles of the spine and the right limb and arm. The tactile sensation in the right limb is blunted, extending anteriorly and posteriorly down to the foot. The head of a pin is felt like a finger. Temperature is less than in the left limb. The difference of the calves is an inch and a fourth in favor of the left limb. The right thigh is correspondingly less in size, the atrophy including the extensors and adductors. In the right limb the patellar reflex is increased, the palmar reflex diminished; both are normal in the left. There is no coxalgia. The right arm is atrophied, cold, and weak; patient can exercise no grip power. He stammers, pauses, and enunciates with difficulty. The tongue is movable in all directions. There is no facial paralysis. Pupils are unequal; the right is dilated excessively; this remains unchanged during an observation extending over several weeks; this condition was not noted by the former attendants.

Diagnosis.—Fracture of the lamina and the articular processes of the right side of the second lumbar vertebra; compression of the cauda at this point. The *petit mal* and the other cerebral symptoms are regarded reflex to the compression of the cauda. The progressive ascending spinal symptoms are held to be owing to a unilateral ascending myelitis.

The operation was proposed as being alone available after all other measures had failed, and because the condition had become unbearable and was threatening an early end. Doubts about its efficacy were entertained on the long duration of the spinal compression, four years and a half having elapsed since the injury, and owing to the ascending myelitis. Restitution *ad integrum* seemed improbable, if not impossible.

The patient gladly consented to this proposition, and was operated on at my sanitarium on June 15, 1892.

Dr. Bell administered chloroform and Dr. E. C. Reyer assisted. The patient was placed on Edebohls's laparotomy table with the anterior surface of the hips resting on the end of the table, which was raised as in Trendelenburg's posture, the head of the patient on the forward end of the table and the limbs hanging over the lower end. A rubber bag partially filled with water acted as a cushion between the anterior abdominal wall and the table. This position gave the greatest convexity possible to the lumbar region and proved of great service in exposing parts. I had experimented with this position and found it tenable without great discomfort or any respiratory embarrassment. An incision six inches in length was made directly over the spines of the lumbar vertebrae. The soft tissues were severed with the scalpel, closely hugging the lateral surfaces of the spinous processes on each side, cutting from above downward to sever the tendinous attachments of the upper muscular layers, and from below upward for cutting the deep layers. This I found practical to save unnecessary mutilation of the soft parts; it is suggested by the anatomy of the parts. The right and left laminae of the second and third and the right of the fourth and part of the right of the fifth lumbar vertebrae were removed. The right lamina and the articular processes of the second vertebra were found thickened from a longitudinal fracture through these parts. Part of the articular processes required removal. The dura mater was found thickened and adherent in this part, and was torn open in removing the cut fragments of bone. A piece of the dura about a fourth by half an inch was removed. The venous bleeding resulting was temporarily frightful, but easily controlled by a gauze packing left in place a few minutes while the work was continued on the opposite side of the spine. Pulsation of the dura was visible. A slight deflection of the third and fourth lumbar spines revealed that these had been broken and reunited by ligamentous union. The right lamina of the third vertebra was contracted and bulged outward (backward) and the articular processes were thickened. The unilateral removal of the lamina of the fourth and fifth vertebrae was done solely to make ample opening. The experience from operations for the relief of compression of the spine calls for free opening. The analogy between the skull and the spine makes this rule applicable to spinal surgery (Chipault).

Drainage was procured with rubber tubes and a skein of silkworm ligatures on each side of the spines. Silkworm was used for suturing the wound. The wound was covered with sterilized gauze and cotton, held in place by adhesive strips. The anæsthesia in the described position was well borne, the operation lasting over two hours. The temperature before the operation was 97° F.; pulse, 62; on leaving the table the temperature was 96.8° F.; pulse, 64. Little nausea and no vomiting followed the anæsthetic. Feeding was resumed on the second day. The considerable oozing of sero-sanguinolent fluid

during the next three days required frequent changes of the dressing. The rubber drainage-tubes were removed on the second day, the stitches on the seventh day, when the parts were healed, except above and below, where the drain openings still existed.

The temperature during the first week reached 100° F., probably owing to an absorptive fever in consequence of the contusion by the retraction of the tissues during the operation. During the attacks of pain it ran up 0.5° to 1° F. After the first week it was normal or even a few tenths subnormal. The pulse varied between sixty and seventy beats to a minute all the time except during pain, which ran it up ten to twenty beats. The urine was voluntarily and easily voided from the start. A slight irritability of the bladder developed on the second day and lasted two days, during which time the urine was voided at intervals of one to two hours. Otherwise vesical symptoms did not obtain. The bowels moved normally. Numbness in the right limb was less on the morning after the operation. The limb was normally sensitive within another day, and on the fourth day and until three weeks had passed it was hypersensitive to the touch, markedly about the knee joint, on the inner side of the thigh, and the upper half of the outer side of the thigh. The right inguinal region was no longer sensitive to pressure after the ninth day. Great pain in the afflicted side (limb, inguinal region, arm, and occiput) within twenty-four hours after the operation. It was variably present for four days; then it recurred on sundry occasions in single regions, and was quite absent after two weeks. There was pain in both eyes on the fourth day. The pupils were noted to be equal on the sixteenth day, unequal on the twentieth day, and lastingly equal after the twenty-first day. The patient, who is naturally excitable, was restless following the operation and quite hysterical. Morphine, one quarter grain twice daily, was given two days, then bromide of sodium was substituted. No natural sleep occurred until after two weeks. On the fifth day the patient was able to cross the right limb over the left without the aid of his hands. The right hand had regained its grip within the first four days. On the twenty-seventh day a leather jacket was applied, and the attempt to sit up and walk was first made, and it succeeded. The right limb bore the weight of the body without strain, and the patient sat up ten minutes. On the next day this attempt was repeated. A tingling sensation in the right knee occurred on standing up. On the twenty-ninth day the patient was up most of the day. On the thirtieth day he walked down a flight of stairs, crossed the street to a barber's shop and returned, without assistance or crutches. One week later the patient was presented to the Indianapolis Surgical Society. Since then he has remained well with one exception. Six months after the operation, incidental to financial grievances and complicated with malaria, the patient developed fever and a delirium of one day's duration. This was unattended by any return of the former symptoms, and may hardly be connected with the former disease.

This recalls an attack of hysterical delirium which he developed on the nineteenth day after the operation. He had clandestinely made a half-hearted attempt to walk and failed. This evoked wild grief and fears. I did not know of this venture, and could not construe the cause of the hysteria; neither could Dr. Bell, whom I called in at this time. Patient did not give me this information until some time after his recovery was assured.

The difficulty and risk of an operation on the spine call for a thorough consideration of its indications. Quite a number of recent writers on this subject, among them authors of standard text-books, condemn all spinal operations

without condition. This serves to emphasize the importance of accuracy in diagnosis. Unfortunately, the symptomatology of injury and of disease of the nerve tissues is intricate and variable, and involves great uncertainty in locating the seat and nature of the lesion. It is often quite impossible to discriminate between lesion of the cord following injury, and lesion of its membranous or osseous envelopment. It is often impossible to determine immediately after an accident causing fracture and dislocation of the vertebræ and attended by paraplegia, whether the cord is compressed only, or crushed beyond restitution; much less to make finer distinctions.

The case reported here is illustrative of the difficulty attending diagnostic precision, and affords an uncommonly interesting material for clinical study and practical deduction. I wish briefly only to allude to this here, because belonging more properly to the domain and decision of the neurologist than to the general surgeon. The operation developed the existence of more fractures of bone than previously were diagnosed. Indeed, before the operation there was little evidence of fracture having occurred. In fact, the right lamina of the second and third lumbar vertebræ, and the spines of the third and fourth, were found to have suffered fracture. This demonstrates the difficulty of recognizing this form of lesion. The heavy muscular coating and the deep seat of the vertebræ serve well to cloud fracture in this locality. No doubt fractures of the vertebræ are a much more frequent accident than commonly accepted, both after force directly and indirectly spent. It is safe to say in a given case, when dislocation, crepitus, undue mobility, etc., are present, that there is a fracture. Hardly may we ever definitely assert in the absence of such symptoms that there is no fracture of the vertebræ.

By the lesson of this case we may feel justified in suspecting many cases of so-called traumatic hysteria, traumatic neurasthenia, traumatic lumbago, concussion of the spine, spinal irritation or anæmia, hemorrhagic pachymeningitis, chronic leptomeningitis, to develop their symptoms on the basis of a vertebral fracture, with or without injury of the membranes, and making pressure on the cord. The presence of deformity, ever so slight, must needs suggest the possibility of its causative relation to the spinal disease, and call for the consideration of surgical measures when other means have failed. The history of many cases shows that a deflection and deformity of the spine have been noted—cases that were unyielding to other treatment, and whose symptomatology suggested a similar pathology as in Rubin's case. This condition in individual cases may yield the indication for operative procedure.

Traumatic lumbago, or railway back, seemed a justifiable diagnosis from the pain in the back, increased on motion, and on transmitted shock; the reflex spasm of the spinal muscles, the rigidity of the vertebral column, following the pain; muscular tenderness in the affected region, and from the absence of apparent fracture of the vertebræ.

A unilateral ascending and descending myelitis, and a peripheral neuritis, in the accepted obscure definition of inflammatory conditions of the cord and nerves, as a development consequent or subsequent to injury, might have

been accepted to exist here. Much contained in the current literature under the head of traumatic nervous diseases may be construed to be similar in origin with this case.

Modern pathological researches have clearly settled and defined the separate nature of traumatic insult and inflammatory agent. Barring self-infection, which is rare and ordinarily pertains only to individuals of a weakened and diseased constitution, compression or injury of the cord is not followed by inflammatory action. The writings and laborious investigation of Page, Watson, and others have done much to explode the notion, long held and yet not fully abandoned, that nervous tissue marked an exception to the rule by inflaming after injury, irrespective of infection. Compression myelitis is a term still in honor, yet in conflict with rational nomenclature and pathology. Knapp makes a just accusation when he says: "Among the sources of confusion in regard to traumatic nervous affections we must certainly recognize the mistakes in nomenclature, etc."

It is reasonable to say, looking back on the case under consideration, that from *a priori* reasoning, as well as from the immediate and complete resumption of functional activity, there had existed in this case no inflammatory disease, no myelitis, nor peripheral neuritis.

This brings up the consideration of what was the pathology? It is certain a compression of the cauda existed. Did this give rise to an ascending and descending degeneration, or to neurasthenia along certain courses? Was it owing to an irritation, transmitted upward, downward, or toward the periphery? Was it an atrophy, or a functional disturbance by defective transmission, or reflex excitation? However the answer may read, it is interesting and important to note that four years and a half had passed from the time of the injury to the date of the operation. It appears from this that an inference on the remediable character of the affliction can not be drawn from the duration of the disease. The ilio-inguinal neuralgia can have meant no neuritis, though clinically it might have been accepted to exist. (Knapp.)

The insidious nature and the slow development of the symptoms are commonly indicative of the spinal cord being exempt. Excepting where acute paraplegia, local paralysis, and anaesthesia exist, the cord may be regarded non-injured.

Whether this case tended to death may be questioned, but this seemed probable. The point bears interestingly on the question whether so-called traumatic neurosis can produce death.

The case is interesting by the presence of obstinate cerebral symptoms, which yielded more or less immediately after the operation. They might have been judged to be an independent cerebral affection. They probably were reflexes. It is of interest, by comparison, to quote Starr, in the *American Journal of the Medical Sciences*, July, 1892, who, speaking on the diagnosis of lesions of the cord, says: "In spinal affections we always have the face as a convenient surface with which to make comparisons; and in diseases of the lower region of the cord, to which attention is direct-

ed in this paper, we have the arms and trunk as a standard of normal feeling."

The absence of vesical and rectal symptoms indicated that the lower sacral region was free of disease (Starr). The sacral nerves showed increased excitability, expressed in pain, sphincter spasm (constipation), bleeding from the rectum, muscular rigidity, pain (coccygodynia), and increased sexual appetite. The hæmorrhages, in the absence of rectal disease, were owing, probably, to vaso-motor reflexes. The motor and sensory disturbances pointed to the upper lumbar regions being the seat of the trouble (Starr).

Knapp (*American Journal of the Medical Sciences*, December, 1892), in an article entitled Traumatic Nervous Affections, reviews this subject in the light of ninety cases observed by him. I quote from him: "The chief complaint is of weakness and stiffness in the legs and of pain in the back, the latter being often due to traumatic lumbago. The knee-jerks are somewhat exaggerated and sometimes there is ankle clonus. One or both legs may show some muscular atrophy, usually without electrical changes. There is often some pain in the legs and various perversions of sensibility, but anaesthesia is rare. Disturbances of micturition are not often uncommon; the demand is often imperative, and if it be not immediately gratified there may be a little incontinence; sometimes, too, it is hard to start the stream, or it stops before the bladder is fully emptied. Constipation is common, and sometimes the anal sphincter in moments of imperative need yields involuntarily. In these cases the clinical picture resembles somewhat that of spastic paralysis, and autopsies and experiments on animals have shown the most marked changes in the lateral columns. Cerebral symptoms are absent and everything points to a spinal origin."

Knapp reports four such cases, and says while some writers deny the possibility of such cases, he will critically examine their arguments by a more elaborate study of such cases. Rubin's case is interesting in affording a remarkably similar symptomatology, and by the results of the operations justifies conclusions quite opposite to those drawn by Knapp. The symptoms do suggest spinal-cord lesion, and still it did not exist.

The possibility of its purely hysterical nature, psychical origin, should be considered yet. The French school will probably at once decide it to be such. This seems hardly justifiable after finding positive evidence of spinal compression. Then, too, the previous plans of treatment (stretching the sphincter under chloroform, plaster-of-Paris jacket, blistering, etc.) were undertaken with expressed confidence of a cure, and were designed to take psychical effect more than the slim hopes held out to the patient by an operation. He was informed that this might kill or fail of all results, even leaving him worse than before. Even after the symptoms had yielded in great part, but before the patient was allowed to get up, he was told that possibly on the resumption of the upright position all the former troubles would return, and, in consequence of the changes in the parts by the operation, greater weakness and worse symptoms might appear. This was done to avert the otherwise crushing despondency after a failure.

To sum up, the lessons of this case would seem to be—

1. To emphasize the obscurity of spinal disease.
2. The uncertainty of ascertaining the nature and regional extent of the lesion.
3. The impossibility of determining beforehand the degree of destruction and its relation to the power of regeneration.
4. The possibility of compression so closely resembling other lesions as to represent them all.
5. The uncertainty of diagnosis where it is coupled with failure of therapeutical effort otherwise should call for the earnest consideration of an operative venture.
6. The position during operation afforded advantages that may induce further adoption of it.

The recovery from the spinal and cerebral symptoms in Rubin's case was and remains complete at this writing, thirteen months after operation. A stiffness of the lumbar region is present, and it is owing to an ankylosis resulting from the operation and prolonged splinting. It can only be conducive to support and protect weakened parts. It disables the patient as regards lifting anything heavy when his body is bent forward. The jacket was worn two months after the operation and then dispensed with entirely.

CASE II.—W. R. McG., American, fireman, aged forty years. In March, 1890, the patient stood on a burning roof, which suddenly gave way at a height of about thirty feet. He was found standing up, stunned and dazed. He showed great excitement, and, on being taken home, grew hysterical. He was inordinately jocular; claimed to suffer no injury or pain. He reported for duty the next day. Soon it was observed that his memory failed him and that his speech often was incoherent. His limbs twitched, and on getting up he would stagger a little before he could walk. He complained of backache and rheumatic pains in his limbs; was irritable, in contrast to his former calmness and cheerfulness of manner. His speech was muffled and by an effort varying in degree. These symptoms were noted by his fellows in the fire department, who tolerated his condition and assumed his duties to enable him, nominally, to be enlisted for duty. Constipation existed before the accident, but was greater after it. He sobbed and cried in his sleep. He scratched his head sore back of the right ear and picked his nose much. He was stupid a great deal of the time; would sit musing and laugh to himself. While walking at times his right knee would yield under him; every time he got wet there would follow pain and weakness in the right limb. In walking, the patient bung forward and to the left. He was cheerful about his condition, thought little about it, and always expressed himself confident that he would get well again. In July, 1891, the patient was knocked over by a hose, and fell with his back on a projecting board. Since then he complained much more of backache, and his limbs pained him, especially the left. Rubbing them would temporarily relieve this pain. He felt much better when sitting down, and was much relieved in the morning after a night's rest. He was off duty since the last accident. In February, 1892, the patient was suddenly seized with a profound stupor. He was dazed, could not talk, nor would he answer to questions. He had great pain in the head and body, and was restless and sleepless. The next day his gait was staggering and his speech more difficult and unintelligible. Two more such attacks occurred within six months. Of late the patient is less excitable. His appetite is always good, digestion perfect. Sexual desire lessened gradually until lately, when impotency prevailed. I saw the patient Novem-

ber 3, 1892, two years and a half after the first accident. The right limb bears the weight of the body unsteadily. The right thigh measures nineteen inches and three quarters, the left thigh twenty inches and a half. The right limb is not full on the inner side like the left. The knee reflexes are diminished, more on the right side. There is no disturbance of sensation to touch, prick of pin, to heat or cold. A blunted sensation only exists in the upper and back part of the right thigh and part of the leg. In standing, the patient always favors the right limb, and in walking he leans and shifts to the left side. In the right limb the extensors and adductors show weakness. There is difficulty in passing urine now and then, more so of late. The right hand is less strong than the left. The spine is sensitive to pressure at the lower lumbar vertebrae; the spine of the fourth is deflected three eighths of an inch to the right side. The dorsal spines are tender and deflected to one side. The right pupil is dilated and stationary; this condition is ascribed to an injury to the eye many years ago, since when it is unchanged.

I saw the patient again December 4, 1892. The day before he had had three attacks of sudden weakness. In the last attack he was shaving himself, when a cramp of the right arm and hand occurred. He turned around to tell of this, when he sank down in his knees. Consciousness was retained. The speech was limited to saying Yes and No indistinctly, though he evidently cared to say else. The right limb is perceptibly weaker than before; the right arm is cramped, especially in the little and ring fingers, which, too, are painful. Two doses of bromide of sodium, fifteen grains each, relieved the paralysis of the arm and the speech only. Stupor, or daze, continued worse than before.

The history and the symptoms in this case hardly justified a definite diagnosis. The symptoms probably were of both spinal and cerebral origin. The occurrence of a second accident complicated the interpretation of this case very much. It could not be ascertained whether the deflection in the lumbar spine existed consequent to the first accident. If this had pre-existed to the second accident, it would have been right to assume that the symptoms, at least in part, were owing to an injury of this region. From the history as given, the symptoms had increased since the second fall; a clear description could not be given of the chronological succession of events. The case was perplexing in its reading; it was growing steadily worse. The experience in the previous case, recalling great similarity in the nature of the accident, the circumstances attending it, and the symptomatology, naturally suggested the consideration of an operative recourse. An operation afforded no valid promise. The case every way seemed worse and more obscure than Case I. Medical treatment, electricity, stiff jacket, and extension, all had been tried without benefit. The patient had been under the treatment of Dr. William B. Fletcher, who regarded the affection of spinal origin.

The case in its obscurity and prognostic gloom, even by an operation, was fully presented to the family. Operation was not advised, though offered, if requested. The case was under advisement three months, when operation was called for.

Operation at my sanitarium on December 20, 1892. Dr. W. J. Browning gave chloroform; Dr. Bell and Dr. Reyer assisted. The position and procedure as in the former case. The spine of the fourth lumbar vertebra was found fractured and united by ligamentous union; its right lamina was thickened and bulging. The laminae on both sides of the fourth and fifth lumbar vertebrae were removed. Slight dural adhesions were found. The dura was opened and nothing indicative of caudal disease was found.

The patient bore chloroform well, and no vomiting fol-

lowed. The temperature after the operation was 98°; pulse, 94. Feeding was well borne. He answered to questions and described his complaints. He was altogether more restful than the former patient at this stage. At 7 p. m. of the second day hicough developed, and pain in the interior half of the thighs. At midnight the patient grew restless. He wanted to get up, and was restrained with difficulty. Morphine, one fourth grain, was given at two o'clock, and thirty grains of bromide of sodium half an hour later, with the effect to quiet him. The patient perspired freely and his pulse ran up to 140.

At six o'clock that morning the temperature was 100.2°, pulse, 104. At 11.45 a. m. the patient suddenly stopped breathing for about two minutes (nurse's statement), and limbs twitched, more on the right side. When I saw him shortly afterward his temperature was 101°; pulse, 124; respiration, 30. He was in a stupor from which he could not be roused. The face was drawn to the left. Temperature steadily fell, pulse increased, the respiration increased in frequency and became stertorous. Death occurred at 7 p. m., fifty-five hours after the operation. The wound had been dressed twice, was sweet and free of suppuration, swelling, or redness; there was less sero-sanguinolent discharge than in the former case.

A post-mortem examination had to be limited to the seat of the operation and developed the parts free of redness, swelling, or pus. The parts were agglutinated, except where the drainage-tubes interfered. The dura and cauda were free of congestion.

It must be regretted that the post-mortem examination did not cover more ground; by the light of it alone might this case have a clear reading. It is likely that diseased conditions higher up on the spine were at fault; and cerebral complications may be accepted to have existed. The final scene must probably be connected with a lesion, an apoplectic seizure, located in the medulla oblongata, and was like in kind to the attacks he had previously suffered. The operation can hardly be accused of more than an exciting cause, added to an explosive condition pre-existing.

194 EAST MICHIGAN STREET.

ORGANIC STRICTURE OF THE ŒSOPHAGUS.

By PRICE BROWN, M. D.,

TORONTO.

EXCLUDING dysphagia produced by external pressure, the two recognized forms of organic stricture—fibrous and malignant—are often difficult to diagnosticate from each other. This is more particularly the case when the former variety, like the latter, occurs in middle or advanced life, and where it can not be traced directly to traumatism. The fact that the symptoms of fibroid stricture so closely resemble those caused by the first stage of cancerous disease has caused many to believe that the two are really identical, and that the presumed fibrosis is merely an indication of the presence of malignancy.

That idiopathic fibroid cases do occur, however, seems to be borne out by the literature of recent years, as a number of cases have been published in which there was no apparent tendency to formation of cancer, and yet in which the etiology of the existing fibroid lesion could not be traced.

In view of the idea of identity, the question might be

asked: If non-traumatic stricture of one mucous membrane—the urethra—be rarely if ever malignant, why should non-traumatic stricture of another mucous membrane—the œsophagus—be always malignant?

When marked malignancy exists the symptoms are characteristic enough. We have the cancerous cachexia; the enlarged glands; the roughened, jerky, hæmorrhagic mucous membrane on passing the bougie; the pain; the fœtor; and the speedy invasion of the larynx or trachea; in contradistinction to the clearer complexion, the absence of glandular enlargement, the smooth but tightly grasping œsophagus, the freedom from hæmorrhage, and the normal larynx of the fibroid. Still, without doubt, many with simple fibroid symptoms at first, ultimately take on all the distressing features of malignancy.

The treatment of fibroid stricture should aim essentially at restoring, as far as possible, the normal lumen of the œsophagus; and as a supporting measure, with the view to prolong and make comfortable the life of the patient, the same should be our object even when the disease is of a malignant nature.

Some enthusiastic abdominal surgeons have, however, taken a different view; and, perhaps with more force than wisdom, urge the importance of the operation of early gastrostomy in all cases of undoubted organic stricture. A brief examination of published cases will be sufficient comment upon such a method of procedure.

In looking up the literature of recent years upon stricture of the œsophagus, I can only find records of 49 cases.

Of these, 29 reported as malignant, 13 as fibroid, 2 as traumatic, 1 as syphilitic, 2 as unclassified, and 2 as paralytic.

Of the patients with malignant strictures, 11 were treated by linear electrolysis and dilatation, with reported good results; 9 by gastrostomy, of whom 5 died within fifty hours, 3 lived short undefined periods, 1 lived 3 months and died of lung complication; 8 were treated by retention tubes with beneficial results, and 1 was treated by œsophageal bougies with beneficial result.

Of those with fibrous strictures, 8 were treated by linear electrolysis and dilatation, with 7 cures; 3 by retention tubes, all cured; 1 by dilatation with bougies, cured; 1 by gastrostomy, died two days later.

Of the traumatic, 1 was treated by gastrostomy, cured; 1 by dilatation with bougies, cured.

Of the syphilitic, 1 was treated by dilatation, cured.

Of the paralytic and remaining cases no report is given.

As will be seen, no case of permanent cure of malignant stricture has been recorded, while the only ones in which the treatment has been followed by an immediately fatal result have been those in which gastrostomy has been performed, or in fifty-five per cent. of the patients operated upon.

Two or three of the more remarkable cases of gastrostomy might be referred to more fully.

In Sheen's* case a hard, cancerous nodule occupying

* *British Medical Journal*, June, 1889.

the circumference of the tube was found, through the center of which a No. 10 catheter could be forced. There were no enlarged glands, yet patient died the following day.

In Ross's* case, the patient was fifty-five years old. His state was that of almost complete inanition. He died two days after operation. There was no glandular enlargement, the case being one of simple fibrous stricture near the lower end of the oesophagus, and too far down to admit of successful dilatation. The surgeon believed that an earlier operation would have saved his life.

In Terillon's† case—one of cicatricial stricture—it was impossible, both before and after gastrostomy, to catheterize through the pharynx. It was possible, however, to pass a catheter from below upward; and from this the permeability of the oesophagus gradually became established. The stomach fistula was finally closed, and the patient could swallow as well as ever.

The cases of linear electrolysis are all reported by A. Fort,‡ who has proved himself an enthusiast in this line of treatment; and a singular success seems to have attended his efforts. As no fatal results have occurred directly from the treatment itself, it is worthy of a more extensive and thorough trial.

Symond's* retention tubes and Leyden's|| permanent cannulas in malignant cases, the stricture being situated in the neighborhood of the larynx, have met with more general favor. In Annandale's^ fibroid case, swallowing fluids prior to the insertion of the tube could be accomplished with great difficulty. Subsequently he took his meals with pleasure. In Lodge's() malignant case the tube was worn seven days. The patient took food well and gained four pounds in the time. Then the instrument choked up, had to be removed, but could not be reinserted, and the patient died. In his fibroid case the tube continued to be worn with advantage.

In four out of the forty-nine cases reported was the dilatation method practiced. In the three non-malignant cases cure resulted; in the malignant one, marked relief.

Morejon's‡ first case was one of double traumatic stricture—the one situated at the diaphragmatic ring, the other at the level of the first dorsal vertebra, both produced by a large needle at the age of eight years. Treatment was by dilatation fifteen years later. The result, permanent cure. His second case was extensive fibroid stricture. The treatment, daily catheterism for forty-five days, likewise resulting in cure.

Kemp's§ case was one of syphilitic ulcer in a woman aged thirty-six, situated four inches down the oesophagus; successfully treated by bougies.

Revington's* was one of malignant disease, and, as already stated, the result was temporarily beneficial.

To these I may add the three following cases, which came under my own observation during the present year.

CASE I.—Mr. J. C., of Fenelon Falls, aged sixty-two years, bookkeeper, referred on April 5th. Family history good. Personally healthy until three months ago. Symptoms then commenced with pain in one ear and in swallowing. Always spare; had lost twenty pounds in that time. Dysphagia had increased steadily since January, but not the odynophagia. During the last twenty-four hours had only been able to swallow half a tumblerful of soft food. To test the power of deglutition I gave him a mouthful of milk to swallow. It produced a spasm of strangulation and came back through the mouth and nose.

Glands of left side of neck slightly swollen. Throat catarrhal, but larynx normal. After washing out the throat with a spray I attempted to pass larger bougies down to No. 9 catheter, but in vain. Could only get the smallest down to the region of the cricoid. Finally I wrapped a laryngeal probe with absorbent cotton, and saturating it with a ten-per-cent. solution of cocaine, succeeded in passing it through the stricture immediately behind the cricoid. There was some jerking and roughness, but no hemorrhage. It took several minutes' gentle pressure to pass it through. I followed this by No. 9 catheter. After waiting a few minutes I repeated both operations. On the 6th, at 9 A. M., passed No. 11 catheter; at 7 P. M., No. 13 bougie. On the 7th, No. 15 bougie; on the 8th, No. 17 bougie; but on each occasion I had to precede the bougie by the cocaineized cotton probe. My bougies were all round-pointed; I had no tapered ones. It seemed as if the roughened, swollen, internal surface of the stricture filled up its lumen, and it was only after the astringent and anæsthetic effect of the cocaine that the instrument could be entered. For the next seven days the routine of probe and No. 17 bougie were regularly performed. On April 14th† I secured a tapered No. 22 oesophageal bougie, and for the first time was able to pass the instrument without the previous use of the cotton-holder.

After this the intervals of treatment were lengthened to several days. The patient became quite hopeful and could take a fair amount of food. He returned home, taking the bougie with him; and, at my request, his physician, Dr. Graham, continued to introduce it two or three times a week.

On June 15th, ten weeks after I first saw him, Mr. C. returned for examination. He looked stronger, took all the food he wanted, and had gained one pound in three weeks. The doctor had not passed the bougie for ten days. Notwithstanding all this, the glands on the left side of the neck were more numerous and larger; the left arytenoid, formerly unaffected, was swollen and red, and the left vocal cord was paralyzed and in the cadaveric position. He remained several days, during which time I introduced the large bougie a couple of times, with slightly more difficulty, and attended on the first occasion with slight hemorrhage. Near the last of July I received word that, although he was slowly failing, his capacity for swallowing had even improved, and two weeks had elapsed since the doctor had had to use the bougie.

This case is undoubtedly malignant and must soon terminate fatally; still the advantage derived by the patient from the treatment could not be questioned.

CASE II.—Mrs. B., of Princeton, aged fifty-two years, referred on May 16th, has had difficulty in swallowing for a long

* Reported to the Toronto Medical Society, April 13, 1893.

† *Arch. de médecine*, January, 1890.

‡ *Journal of Laryngology*, 1890.

§ Clinical Society, London, Eng., February, 1889.

^ *Deutsch. med. Woch.*, 1889.

|| *British Medical Journal*, February, 1890.

() *Ibid.*, May, 1892.

§ *Revista de Medicina y de Cirugía Prácticas*, October, 1889.

‡ *British Medical Journal*, December, 1890.

* *London Lancet*, May, 1890.

† On the 13th the patient was exhibited and bougies were used before the Toronto Medical Society.

time, becoming steadily worse for the last two years; can assign no cause for it. Is thin and nervous; can swallow fluids slowly, actual solids not at all, and pulp only in small quantities. No external swelling. Pharynx and larynx normal. Upper œsophagus catarrhal.

After spraying with cocaine, introduced No. 15 tapered bougie. It passed smoothly down the œsophagus, but was grasped tightly at the region of the cricoid. On the 17th passed No. 17 bougie. On both occasions soreness was produced, extending up back of neck toward the occiput. On the 18th and 20th passed No. 19 bougie; soreness less marked. The patient went home, returning for treatment on June 2d. Deglutition much improved. After spray of cocaine, passed No. 22 tapered bougie without much difficulty. On the 3d passed same without cocaine; likewise on the 6th. Returned again on the 13th, eating well and free from pain. Passed No. 22 bougie; followed this by egg-shaped dilator No. 25. Had more difficulty with the latter; but as it passed through stricture, it dropped suddenly into the wider passage, indicating the precise extent of the lesion. Its extraction was still more difficult than its insertion, and on this account would seem to be a more dangerous instrument than the œsophageal bougie. Three weeks later I again inserted the No. 22 bougie—this time without the slightest difficulty. Patient felt well and strong, and since her last visit had taken her meals with the rest of the family.

This, I think, may be regarded as a case of idiopathic fibrous stricture, with a prospect of complete recovery.

CASE III.—Mrs. D., of Brantford, aged sixty-six years, referred on June 21st, has been failing for two years. Has suffered for a long time, off and on, from diabetes insipidus. Also has had glandular swellings under the ribs and arms. Now has them in the neck; can not swallow solids, fluids only in small quantities. Case considered by family physician as a hopeless one of malignant disease.

On examination, no cancerous odor, no marked cachexia. Larynx normal; supersecretion from the lower pharynx; expectoration profuse.

Could not pass the smallest bougie more than two inches below entrance to œsophagus. On the 22d failed again to pass small tapered bougie below the cricoid. As the soreness was considerable, did not attempt again until the 24th. This time I adopted the plan referred to in treatment of first case. Dipping the cotton probe into a ten-per-cent solution of cocaine, I carefully passed it down the œsophagus and into the stricture, using gentle pressure. In a few minutes it passed through. This paved the way for No. 15 tapered bougie. On the 26th the probe was again used; this time followed by No. 17 bougie. On July 3d patient returned to my office improved in every way. She had taken nourishment fairly well, and, for the first time since I had seen her, walked about without assistance. After spraying with cocaine, I introduced No. 22 tapered bougie. It was grasped tightly but penetrated without much difficulty. On the 7th introduced same instrument again, without using cocaine and with still less difficulty.

Two days later, as she was taking nourishment freely and without pain, she left with friends to recuperate at the seaside.

This case is a less hopeful one than Case II. and may prove to be malignant. Still it lacked the characteristic odor, the attendant hæmorrhage, and the roughness of surface usually attending that disease; and the treatment was rewarded by the gratitude and approval of both the patient and her friends.

The œsophageal bougie in unskilful hands is undoubtedly a dangerous instrument; but when manipulated with proper gentleness in selected cases, its use may often be attended with the best results. Quite possibly the reason why it has not

been received with more general favor is that the use of cocaine, applied internally to the stricture itself, has not been practiced.

37 CARLTON STREET.

A CASE OF UNILATERAL MEMBRANOUS RHINITIS.

By JOHN DUNN, M. D.,
RICHMOND, VA.

TOM S., aged five, was brought to my office June 5, 1893. History as follows: Two weeks ago patient had amygdalitis. Since the acute symptoms subsided patient has been "threatened several nights with the croup." Has had "cold in the head, which has stopped the nose up, so that I have had to wash it out before he could breathe through it." Child since infancy has had croupy tendency. During the attack of amygdalitis patient had "white patches on the back of his throat." Quite a severe attack of croup the night of June 2d. Family physician was sent for June 3d, and, having his attention drawn to the nose, found protruding from the left nostril a whitish semisolid substance. Thinking it might be a mucous polypus, he attempted to remove it, but found that it bled with the slightest manipulation. The little patient at this time seemed to be well—"no quickening of the pulse," "no fever." Examination of the throat June 5th showed moderate enlargement of the tonsils and some adenoid tissue, together with some signs of pharyngeal inflammation. No membrane. The right nostril and nose were clear, except for the presence of some loose mucus. The left nostril was entirely occluded by a thick, tough, whitish membrane. The nostril entrance was swabbed with cocaine solution, and the membrane was then seized with a pair of forceps and an endeavor was made to withdraw it. A small piece was torn from the cartilaginous septum. This was followed by considerable bleeding; perhaps a teaspoonful of blood followed this attempt. With some manipulation I found that the membrane extended back far into the nose, and was on all sides attached. After applying cocaine thoroughly to the nose, a warm solution of bicarbonate of sodium was sprayed into the nose for about a minute. The patient was then told to blow his nose. He did so, but complained that it hurt him to blow it. The spray was again sent into the nose, and after two or three minutes the patient was told to again blow his nose. He did this two or three times, when finally the membrane came away entire. The denuded surface of the nose could then be seen. The membranous attachment had been to the lower half and anterior two thirds of the septum. A posterior deviation of the septum seemed to be its limit behind. It was attached also to the floor and to a part of the outer wall of the nose. The membrane was about half a millimetre to a millimetre thick, and showed numerous bloody points of attachment. Further treatment for the day was to wash with a cotton swab the raw surface in the nose with 1-to-1,500 bichloride.

June 6th.—Membrane has reformed and was found to be more difficult to remove than on yesterday. Raw surface bleeds when attempt is made to pull it off. With the aid of the warm soda solution it, however, finally came away. The membrane, half a millimetre to a millimetre thick, was attached to the mucous membrane of the nostril, to that of the septum as far back as could be seen by anterior rhinoscopic examination, to the middle turbinate bone, its lower part, to the inferior turbinate, and to the floor of the nose. Surface again washed with bichloride, 1 to 1,500. Patient given iron. Told to wash the nose with soda solution.

7th.—Membrane again reformed. Treatment as yesterday.

9th.—Membranous deposit to-day is slight and chiefly around the nasal entrance. Is readily cleansed with the warm soda solution. Patient recovered without trouble. Excessive mucous discharge, however, continued from the nose, especially the left side, for some weeks.

The case is reported for several reasons. In the first place, the literature of membranous inflammations of the nasal cavities is not overabundant, and in more than one particular the case above reported allows an insight into the nature of this disease somewhat different from that usually obtained. Bosworth says: "If now a careful examination is made of the false membrane, it will be found that it is easily detached from the mucous membrane beneath it without causing hæmorrhage. This, I think, constitutes the pathognomonic symptom of a croupous exudation in this region, as distinguished from a diphtheritic." This test of the nature of an exudation upon a nasal mucous membrane has so many exceptions as to be worthless. Let us take, for example, the membrane that from time to time forms on the mucous surfaces after the application of the galvano-cautery or a strong acid. From the time of the formation of this membrane up to a certain point of its history detachment is followed by hæmorrhage more or less marked. Later on the membrane "is easily detached, without causing hæmorrhage." These irritation membranes I have never seen as thick or dense as that formed in this case. Furthermore, under the action of certain solvents these membranes can be detached without causing hæmorrhage, when simply rubbing or pulling them off would cause marked flow of blood. Thus, in this case, so firmly attached was the membrane to the surface below that pulling off even a very little piece of it was followed by the loss of about a teaspoonful of blood, whereas after the membrane had been soaked for some few minutes in a warm solution of cooking soda the whole membrane came away practically without the loss of blood. It, however, left beneath it a raw surface which would bleed under little provocation. In a case where the membrane was so thick and so extensively attached as here one would naturally think of diphtheria as the possible cause. There were, however, no constitutional symptoms to bear out this possibility. The child played about the house and yard, and, except that it complained that its nose was stopped up, seemed perfectly well. It is true that "two weeks or so" before, the child had had "amygdalitis with some white patches on its throat." The family physician had seen the case and had found in it nothing to justify fears of diphtheria, knowing as he did the child's "croupous tendency." The child was well in a few days. How long this deposit had been present in the nose I do not know, although it would seem little likely that it had existed since the time of the amygdalitis. It had been first noticed two days before I saw the case. There is one point of interest here. The mother had, because of the amount of mucous secretion, been "washing the nose out with water, using a syringe" for the purpose. It is not improbable that the force with which the water struck the septum may have been sufficient extra cause to induce a membranous inflammation in an inflamed nose. Or the water may have been dirty, and

so have conveyed to the inflamed parts the cause of this deposit.

The fact that the inflammation was unilateral lends, I think, strength to the supposition that the water was the cause of the membranous nature of the inflammation in this side; for while there was a deviation into this side posteriorly, the anterior part of this nose was more roomy than that of the other side, and hence not only could more water be easily injected into this side, but there was a greater tendency for its accumulation, there being a partial closure of the posterior nose. The nature of the membrane was firm and tough and it showed no disposition to leave its place. The lack of concomitant constitutional symptoms pointed to the local origin of this membrane. In regard to the weak solution of bicarbonate of sodium as a partial solvent of this membranous deposit, it need only be said that this simple remedy has never obtained the recognition it deserves as a cleanser of the mucous surfaces. I know of nothing that equals it as a wash whose chief object is the cleansing of the nose of secretions or deposits. In acute coryza, *e. g.*, a spray of warm bicarbonate-of-sodium solution will cause almost instantaneous cessation of the discharge. Its effects are, however, only temporary; but if the spraying be repeated a few times at intervals of half or three quarters of an hour, it is more efficacious in shortening the attack than any other remedy I know of. Nor has the value of this remedy received the attention it deserves in the treatment of the acute forms of pharyngitis, etc. The membrane was not bacteriologically examined. What such an examination would have revealed it is impossible to say. If the Klebs-Loeffler bacillus were present—and it is not improbable that such might have been the case—the absence of constitutional symptoms calls for comment. If present in its "attenuated form," it is even thus a powerfully active agent to reproduce so thick a membrane in twenty-four hours. If in its virulent form, the absence of constitutional symptoms might be due to the distance of the anterior nose from any system of lymphatic glands.

SYRUPUS ACIDI HYDRIODICI.

By W. BLAIR STEWART, A.M., M.D.,

INSTRUCTOR IN THERAPEUTICS;
LATE INSTRUCTOR IN PRACTICE IN THE MEDICO-SURGICAL COLLEGE,
PHILADELPHIA.

SINCE the introduction of the syrup of hydriodic acid into our Pharmacopœia as an official remedy much discussion has followed, both favorable and unfavorable to its use. It has been my privilege to use the syrup of hydriodic acid in a large number of cases in private practice with such uniform success that it may not be amiss to detail some of the results and conclusions reached.

Preparation.—As stated by all reliable authors, syrup of hydriodic acid is not absolutely stable, and every preparation will undergo slight changes in course of time. A reliable preparation should be perfectly clear, or of a very slightly tinted straw-color; sweet to the taste and not irritating; without acid odor; absence of iodine reaction with starch; absence of fermentation; syrupy in consistence and

palatable to the taste. Dark-brown preparations are worthless, unsatisfactory, irritating, nauseating, and dangerous, and must be condemned at once. Fermentation destroys its efficiency by liberating free iodine and hydriodic acid, which is a gas. Any preparation which has stood for a length of time exposed to the air, heat, or strong light should not be used. Small, dark bottles, hermetically sealed, are preferable to large ones, unless the syrup is used within a short time—this is especially the case in hot weather. It should not be dispensed in large quantities and is best given in its pure state (to be mixed with water when taken) rather than in combination. Combinations are liable to undergo changes more rapidly than the simple drug, and are to be avoided. There are a number of reliable preparations on the market, and, if the above-mentioned points are followed, there will be no difficulty in selecting them.

A large number of failures with syrup of hydriodic acid have been traced by the author to the use of improper preparations or to its administration where it was not indicated. This suggests the questions, What are the advantages of syrup of hydriodic acid? and What are the indications for its use?

It is palatable; does not irritate the stomach; can be given in small bulk; is not objectionable to children, and does not contain objectionable materials. Iodide of potassium makes a nauseous dose, large in bulk, and hard to administer to children. Potash also irritates the kidneys. Hydriodic acid will produce the same physiological effects as any other preparation of iodine, and will cause coryza, ptialism, skin eruptions, and anemia, if pushed in amount.

Indications.—Tertiary syphilis in all its forms; strumous diathesis and its various manifestations; rheumatism; eczema—in fact, it is to be used internally as any other iodide.

Clinical Cases.—CASE I.—A little girl, aged four years, was weak and cachectic from infancy. Six months before seeing the child it developed phlyctenular keratitis and conjunctivitis in the right eye. There was also coryza, excoriation of the upper lip, general anemia, and malnutrition. When I was called the child was in such a condition that the parents and, unfortunately, their former physician had given up all hope of saving the child's eye, or even its life. At my first visit the child was given an ointment of yellow oxide of mercury (one grain to the drachm of refined cosmoline), to be instilled into the eye twice daily. Syrup of hydriodic acid was ordered in three-drop doses three times daily, to be increased one drop every other day until ten drops were taken at a dose. A diet of meat, rich milk, eggs, and vegetables was ordered. In one week the change was marvelous. The eye was better and every symptom was improved so much that the same treatment was continued. The syrup was increased to fifteen drops three times daily. In three months the child was entirely cured. The eyesight is perfect and only a small cicatrix remains on the margin of the cornea. The coryza has entirely disappeared and the child is robust and constantly gaining in flesh. No medicine other than that mentioned was used. No amount of inquiry could elicit the least possibility of specific trouble and the case was undoubtedly one of strumous origin.

CASES II AND III.—Two babies, aged about nineteen months, in separate families, whose parents were in perfect health,

both affected alike. Typical cases of eczema capitis; coryza; general marasmus; blue, anemic skin; diarrhoea of an obstinate but subsacute character, and both children unusually small for their age. Locally the head was first thoroughly anointed with hot sweet oil, and then cleansed with green soap and hot water. A ten-per-cent. ointment of ung. hydrargyri oleat., in lanoline, was applied night and morning. Syrup of hydriodic acid was given in three-drop doses, three times daily, in water. In one week the dose was gradually increased to ten drops, and continued constantly for two months. The results in both cases were most satisfactory. Head was entirely cured; diarrhoea ceased; both gained in flesh and began to lose that blue anemic appearance. To-day, one year after my first visit, both children are perfect pictures of health, and neither child has shown the least disposition to relapse. Hydriodic acid was continued twice daily for six months in both cases.

CASE IV.—Thomas K., aged thirty-five years, Irish, tertiary syphilis ten years after inoculation. Several ulcers on buccal cavity and lips, raw gummatous growths on nates and corner of mouth, loss of hair, constipation, headache, and general debility. Mercury could not be tolerated in any form. Iodide of potassium proved so irritating and objectionable to the patient that it could not be used. Ten-drop doses of syrup of hydriodic acid were ordered in water three times daily, to be increased one drop each day until sixty drops were taken at a dose. The ulcers and gummata were treated with a powder of zinc oxide two parts, boric acid and aristol one part each. The syrup was well borne by the stomach, and improvement was so rapid that the same treatment was continued for three months, during which time he had gained twenty pounds; constipation had disappeared and every symptom was so much improved that the patient considered himself cured. He now takes the following pill three times daily, which will be continued even though all symptoms have disappeared:

R Hydrargyri protiodi..... gr. $\frac{1}{2}$;
Acidi arseniosi, { aa gr. $\frac{1}{10}$. M.
Strychnina sulphatis, {

These cases, selected from a large number of equally interesting and successful ones, will serve to illustrate the efficiency of this drug. It has served me well in chronic rheumatism in two cases. Its value in the treatment of eczema in the adult is aptly shown by another case which demanded my attention.

CASE V.—John B., aged thirty-eight years, was troubled for years with chronic eczema of the hands, arms, and legs, but has been in comparatively good health otherwise. Was ordered half a teaspoonful of syrup of hydriodic acid in water, three times daily after meals, to be increased daily until one teaspoonful was taken. Locally he was given—

R Hydrargyri oleatis..... ʒ ss.;
Olei cadini..... ʒ ss.;
Olei rose..... gtt. v;
Adipis purificat..... ʒ ss.

M. Sig.: Use locally night and morning.

Treatment continued six months, resulting in the disappearance of all symptoms. At times there is a tendency for it to recur, but a renewal of treatment causes it to disappear almost immediately.

My experience with reliable preparations of syrup of hydriodic acid leads me to the conclusion that it can be safely and efficiently used in all cases where an iodide is indicated internally, and only in my poorest families, who can not afford its use, is the iodide of potassium or ammonium substituted.

BRYAN MAWR, PA.

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THE DIRECT TREATMENT OF FRACTURED BONES.

In his presidential address delivered at the recent annual meeting of the American Surgical Association, published in the August number of the *Annals of Surgery*, Professor Nicholas Senn, of Chicago, brought forward a practically new and, we should say, highly ingenious and efficient method of direct fixation of the fragments in the treatment of compound fractures and in that of simple fractures in which for any reason, such as non-union, it is thought best to expose the fracture by an incision and attempt direct immobilization. Really two original methods are described, each of which has its own range of usefulness. The first consists in the insertion of a tube of sterilized bone into the medullary canal of the injured bone—one end of it into one fragment and the other end into the other. This is manifestly so superior to the use of solid plugs of bone or ivory that Professor Senn is abundantly justified in proclaiming it as original. The tube is made from the shaft of a long bone of the turkey, the chicken, or the rabbit by enlarging the medullary canal by means of a small round file and then drilling numerous holes in its wall. Not only do these procedures greatly reduce the amount of foreign material that will sooner or later have to be removed by absorption—and, as the author points out, there is a limit to such absorption—but they vastly increase the surface upon which the forces of absorption are enabled to act; furthermore, this perforated tubular plug can be inserted with a minimum of disturbance of the marrow belonging to the fragments of the broken bone, and the perforations allow new blood-vessels to penetrate from the medullary cavity to the osseous shaft. The plug constitutes, in short, an absorbable intra-osseous splint that effectually prevents slipping of the fragments, while interfering as little as could be hoped for with the normal anatomical conditions.

The other method is by the use of a bone ferrule slipped over the fragments, care being taken not to disturb the periosteum more than is really necessary. "The ferrules are made," says Professor Senn, "of different sizes from fresh bone obtained from the slaughterhouse or butcher shop. For the humerus and femur of the adult the femur of an ox should be selected; for children the same bone of a smaller animal will answer the purpose. For the tibia the corresponding bone of the animal is chosen. With a sharp saw the shaft of the bone is cut transversely, the length of the sections corresponding with the desired width of the ferrule, which will vary from a quarter of an inch to an inch. With a round file the medullary canal is enlarged until the thickness of the bone does not exceed one sixth of an inch; in some instances a much thinner

ring will furnish the necessary lateral support. If the ferrule is longer than an inch it should be perforated at a number of points, in order to furnish so many avenues through which the products of tissue proliferation and the new blood-vessels can reach the tissues outside of the ferrule, and *vice versa*, and also with the intention of facilitating the absorption of bone after the fracture has become consolidated. Ferrules made of the tibia should retain the shape of the bone, in order to adapt their lumen to the treatment of fractures of the tibia. Sterilization is effected by boiling for an hour or more, after which the rings are kept immersed in sublimate alcohol (1 to 1,000) ready for use." It is thought that the ferrules should be a little too large rather than at all too small, for a large one can be wedged tight by means of pieces of asepticized bone, but there is great danger of breaking a small one in the subsequent application of the plaster-of-Paris splint, which auxiliary means of immobilization is required whichever method of direct fixation is employed. In cases of compound fracture, if the wound is of a kind not to call for drainage, it should be closed with buried sutures; in any case a fenestra should be left in the plaster splint through which the wound may be inspected and treated.

Professor Senn feels sure that these intra-osseous splints and bone ferrules are soon absorbed, and his experience in their use thus far has been highly satisfactory. He gives the details of three cases in which the ferrules were used.

Professor Senn closes his most instructive address with the following conclusions:

1. Direct fixation of the fragments is indicated in all compound fractures in which perfect retention can not be secured by simpler measures, and in the treatment of ununited fractures requiring operative interference.
2. This method is also justifiable in the treatment of certain forms of subcutaneous fractures in which reduction and retention can not be accomplished without it.
3. Free exposure of the fragments in compound fractures secures the most favorable condition for thorough disinfection.
4. Perfect reduction and direct fixation of the fragments are the most reliable prophylactic measures against delayed union, non-union, and deformity.
5. A compound fracture should be regarded in the same light as an injury of the soft tissues, and should be treated upon the same principles—viz., accurate coaptation of the different anatomical structures and perfect retention by direct means of fixation, aided by an efficient external support.
6. Bone suture and metallic, bone, and ivory nails do not furnish the necessary degree of support and immobilization in the direct treatment of fractures characterized by a strong tendency to displacement.
7. The solid intra-osseous splint of ivory or bone, as advised by Heine, Langenbeck, and Bircber, is objectionable, because it interferes with the ideal production of the intermediate callus, and its spontaneous removal is beyond the absorptive capacity of the tissues.
8. The hollow, perforated ivory or bone cylinder devised by the author answers the same mechanical purpose without the objections which have been charged against the solid cylinder.
9. The safest and most efficient means of direct fixation of oblique fractures is by a

bone ferrule, which must be applied in such a manner that it surrounds both fragments. 10. Such a circular absorbable direct splint prevents lateral and longitudinal displacement to perfection. 11. Rotation of the limb below and angularity at the seat of fracture must be prevented by a carefully applied circular plaster-of-Paris splint. 12. For fractures not requiring drainage the entire wound should be closed by buried and superficial sutures, as the bone ferrule is removed by absorption. 13. In suppurating wounds the bone ferrule should not be removed until direct fixation has become superfluous by the formation of a sufficiently firm union between the fragments. 14. The external splint should be applied in such a manner that it does not require a change throughout the entire treatment, permitting at the same time access to the wound, should this become necessary. 15. Direct fixation of a fracture combined with perfect immobilization brings the different anatomical structures of the broken bone permanently into their former normal relations, preparing the way for the early initiation and speedy consummation of an ideal process of repair and the realization of a perfect functional result. 16. Should future experience demonstrate that bone is not sufficiently absorbable, the same kind of ferrules can be made of partially decalcified bone or chromicized catgut.

AN INJUSTICE TO THE OFFICERS OF THE MARINE-HOSPITAL SERVICE.

THE announcement of the death, from yellow fever, of Assistant Surgeon J. W. Branham, of the Marine-Hospital Service, who was recently ordered from duty at this port to assume command of the quarantine service at Brunswick, Ga., where there was a slight local outbreak of that fever, adds another name to the roll of honor of officers that have died of disease incurred in the line of duty.

The officers of the Marine-Hospital Service that have died of yellow fever acquired at their stations were Assistant Surgeon Roswell Waldo, at Cairo, on October 18, 1878; Assistant Surgeon W. C. W. Glazier, at Key West, in December, [1880; and Assistant Surgeon John F. Groenevelt, at Chandeleur Island Quarantine, on June 29, 1891. To these may be added the death, in 1889, of Passed Assistant Surgeon F. M. Urquhart, whose illness was the result of exposure and overwork incident to quarantine duty.

From 1878 to 1893, inclusive, five officers have died of disease incurred in the line of duty, in a corps that does not attain a total, in the fifteen years, of a hundred officers. The mortality among the officers is greater from this cause than from all others put together. Besides these deaths, several officers on quarantine duty have been dangerously ill, but have recovered.

The reason for calling attention to the matter is a gross injustice that the United States Government does to these officers. A young physician entering the Marine-Hospital Service knows that he may be on duty at some port where yellow fever may break out, or he may be ordered to duty where it exists.

It can not be denied that he has full knowledge of the contingencies associated with holding his commission, just as the medical officer of the army or navy has that he may lose his life in warfare; but in the army or navy a pension is granted to the family of the deceased, while those dependent upon an officer who is fighting against the invasion of disease are not only bereft of their relative but deprived of all support. In most of the instances that are herein specified dependent relatives have been left to provide for themselves as best they could.

It is not credible that the American people would be willing to perpetuate such an injustice if the matter were presented for their consideration. Surely in case of death under such circumstances a pension is as justly due to the family of the deceased officer as it is to the family of one that loses his life in military warfare.

It is understood that a bill will be prepared and introduced into Congress at an early date, providing for a proper pension to the dependent relatives of a medical officer that has lost his life in the noblest way it is possible for man to die—in the discharge of duty.

THE CHOLERA AT NEW YORK QUARANTINE.

THE admirable system, authorized by the recent quarantine law, of stationing sanitary inspectors of this Government at foreign ports has demonstrated its advantages during the present summer. Reference has been made to the fact that Surgeon Fairfax Irwin telegraphed from Marseilles on the 27th of May that cholera existed in that city, although the authorities then and for some time subsequently denied the fact. On July 19th Assistant Surgeon G. B. Young telegraphed from Naples that there had been four cases of cholera in that city on the 17th of that month. This report was at once denied by the Italian authorities. The information, however, served a good purpose, for on August 4th the steamship Karamania, that had cleared from Naples on July 15th having 471 passengers, arrived at the New York quarantine station with a history of the death of one passenger from congestion of the lungs on the second day out, and of the death of two passengers, on August 2d and 3d respectively, of diarrhoea and vomiting.

Although the ship had sailed two days previous to the known occurrence of cholera in Naples, Health Officer Jenkins decided to detain her at the lower quarantine for observation. The wisdom of his action was shown by the removal of a passenger suffering from cholera, as demonstrated by bacteriological examination, to the Swinburne Island hospital on August 5th. On August 8th another cholera patient was taken from the observation barracks on Hoffman Island, and he died on the evening of the 9th. On the latter evening two more patients were transferred; on the 10th, five patients; on the 11th, eight patients; on the 12th, one patient; and on the 13th, two patients. There was a total of twenty cholera patients, and three of these died. The passengers under observation were discharged on August 22d, nine days after the last cholera case occurred.

Health Officer Jenkins is to be congratulated upon the promptness and efficiency with which he handled this vessel and its passengers, and the public press is to be commended for the manner in which it avoided alarming head-lines calculated to intimidate many people and produce a senseless stamped effect such as was witnessed last year.

MINOR PARAGRAPHS.

THE INSURANCE VALUES OF HANDS AND FINGERS.

The *Medical News* for July 22d has an article treating of the statistics given by some companies relative to accident insurance involving the upper extremity. Conservative surgeons have frequent opportunities to modify the probable damages after injury to the hand, as well as to estimate the chances of adding to the ill results by trying to save overmuch. According to a scale of values furnished by the miners' unions and miners' accident insurance companies of Germany, the loss of both hands is valued at a hundred per cent., or the whole ability of a man to earn a living. Loss of the right hand depreciates the working value seventy to eighty per cent., while that of the left hand rates at sixty to seventy per cent. of the earnings of both hands. The thumb is reckoned to be worth twenty to thirty per cent. of those earnings. The forefinger of the right hand is valued at fourteen to eighteen per cent., that of the left hand at from eight to thirteen per cent. The middle finger is rated four per cent. under the first finger. The third finger has a value of only seven to nine per cent., the little finger rating two per cent. higher. The differences in percentages affecting any given finger are governed by the vocation of the injured person; thus it is manifest that the forefinger and the little finger are either of them much more valuable to the literary man or bookkeeper than to the man who works with the pick and shovel. To the latter the middle and third fingers will be especially advantageous, because they relate to the grip which the laborer should have upon his heavy tools.

THE LEGAL STATUS OF THE INSPECTION OF STATE QUARANTINES BY THE UNITED STATES.

The *Abstract of Sanitary Reports* for August 11th contains the opinion of the Department of Justice as to the right of the national Government, under the quarantine act approved February 15, 1893, to inspect, at such times as may be necessary, a State or municipal quarantine of the United States. It is held that the national quarantine system provided for by Congress has necessarily inspective and supervisory powers over the sanitary authorities of the State or municipality, because whenever a power is given by a statute everything necessary to make it effectual or requisite to attain the end is implied; and when a statute gives a right to impose a duty it also confers by implication the power necessary to make the right available or to discharge the duty. Therefore the Government may authorize the inspection of the condition of State or local quarantines by proper officers connected with the Marine-Hospital Service.

THE IMPURE LEMONADE OF COMMERCE.

The *Pharmacological Record* for August points out the injurious nature of some of the compounds sold as "lemonade." Lead was found in appreciable quantities in six of the seven specimens examined. The proportion of lead in some of them was as high as four and six parts in a million—a fact not to be

accounted for by the amount of that metal that very constantly contaminates commercial citric acid. In three instances citric acid was absent, its place being taken by tartaric acid. In five cases there was no cane sugar, its place being taken by grape sugar and saccharine. Phosphoric acid was found in three out of seven examples. This acid is sometimes known as "liquid citric acid" to the manufacturers of table waters; also a combination is employed under the name of "citro-phosphoric acid," which is a cloak to cover a multitude of impurities. However valuable phosphoric acid may be as a medicinal agent, it is decidedly undesirable in a beverage for daily consumption. Helbing and Passmore, whose report it is that occupies the *Record* on this subject, found one of the seven that is practically a standard and safe preparation; the water was pure, there was no acid save citric only, and there was no sweetening agent save cane sugar only.

SIR BENJAMIN RICHARDSON.

DR. BENJAMIN WARD RICHARDSON, a London physician very well known in this country, received knighthood from Queen Victoria on the occasion of her last birthday. One of the best of his literary productions is *Hygieia: a City of Health*. When it was published, in 1875, it soon became popular and was reprinted and translated to an extent seldom seen in respect of a sanitary essay. Dr. Richardson's researches in regard to peroxide of hydrogen, nitrite of amyl, and bichloride of methylene were original and permanently valuable. He has edited, during recent years, the *Aeolepiad*, a personal organ having reference chiefly to clinical observations. Dr. Richardson has been a preeminently useful man in his day and generation.

SENSORY DISTURBANCES IN DIABETES.

DR. P. VERGELY contributes a paper to the *Gazette hebdomadaire de médecine et de chirurgie* for August 12th in which he concludes that disorders of the peripheral sensory nerves frequently occur in diabetes, disorders of pain and temperature sense predominating. In a certain number of diabetics thermodysaesthesia, thermo-hypaesthesia, and thermo-anesthesia are encountered, the first disorder appearing in patients that have no other sensory disorder. In one instance a diabetic was analgesic and completely thermo-anesthetic, and presented to a certain extent the sensory dissociation observed in myelosingosis.

NEWSPAPER MEDICINE.

SOME of our lay contemporaries have, on occasions, quite an unsuccessful struggle with the orthography of technical medical terms, and the struggle becomes amusing when its results appear in the columns of a paper noteworthy for its general freedom from errors. In a recent issue of one of our city evening papers the Quarantine Report, as published, made it appear that a certain young woman had died of "pneumonia and pasenchimutars [*sic*] nephritis." Was the medical editor on vacation, or had the office cat been toying with the type?

ITEMS, ETC.

Recent Medical Legislation in Massachusetts.—Speaking of the legislation of 1893, in so far as it bears upon medical matters, the *Boston Medical and Surgical Journal* for August 17th says:

"The law providing for the registration of deaths by physicians, in connection with the obtaining of a burial permit by undertakers, has been amended so that in cases of still-born children and those dying immediately after delivery the same form is required as in other

deaths, and a penalty is provided for making false statements. The law now reads as follows: 'A physician who has attended a person during his last illness shall, when requested, forthwith furnish for registration a certificate stating, to the best of his knowledge and belief, the name of the deceased, his age, the disease of which he died, the duration of his last sickness, and the date of his decease; and a physician who has attended at a birth of a child dying immediately thereafter, or at the birth of a still-born child, shall, when requested, forthwith furnish for registration a certificate stating, to the best of his knowledge and belief, the fact that such a child died after birth, or was born dead. If a physician neglects or refuses to make a certificate as aforesaid, or makes a false statement therein, he shall be punished by a fine not exceeding fifty dollars.'

'A law regulating so-called sweat-shops provides that all places used as dwellings in which garments are made intended for sale shall be licensed and superintended by the police, or special inspectors, and that, in cases of danger from infectious diseases or vermin, the State Board of Health shall take charge and control. Also that all garments made in such places shall bear tags, with the name of the State and town in which they were made.'

'Local boards of health are required to notify the State Board of the existence in their districts of any disease dangerous to the public health.'

'A law to abate the smoke nuisance in Boston provides that where bituminous coal is used to make steam in boilers, at least seventy-five per cent. of the smoke must be consumed or prevented from entering the atmosphere.'

'The State Board of Health is directed to investigate the question of a water supply for Boston and neighboring towns, and to report in January, 1895.'

'The same board with the park commissioners shall investigate the sanitary condition of the Charles River Basin up to the Waltham line.'

'The members of the State Board of Cattle Commissioners are given power to enforce rules for the prevention of disease among animals.'

'Hereafter plumbers must be licensed, and must pass an examination. The examining boards consist of the chairman of the local board of health and the inspector of buildings. It will be no longer possible for any ignoramus to practice plumbing, but the practice of medicine is still unrestricted.'

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 22, 1893:

DISEASES.	Week ending Aug. 15.		Week ending Aug. 22.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus	1	0	0	0
Typhoid fever.....	30	3	30	4
Scarlet fever.....	43	1	34	4
Cerebro-spinal meningitis. . .	0	0	3	0
Measles.....	124	4	102	7
Diphtheria.....	100	30	104	29
Small-pox.....	1	1	1	1

The Board of Medical Examiners of Montana.—The president, Dr. Charles K. Cole, writes to us as follows: 'At the recent meeting of the National Conference of State Medical Examining and Licensing Boards, held at Milwaukee, June 7, 1893, it was the express desire of the members present that during the present year all State boards should be enrolled as members of the conference, and that the next meeting be made one of more than ordinary interest and profit to us in our work of elevating the standard of medical education. It is also desirable that there be established closer relations between the various boards so that there may be an interchange of ideas and an active co-operation in all that pertains to higher medical education. In order to bring this about there is much to be done, and immediate action should be taken. As secretary and treasurer of the conference, I earnestly request your aid and assistance in accomplishing the desired end. I

therefore ask that the members of your board, if not already enrolled, become members at once by sending in their applications and first annual fee of \$2. That the records of the conference may be made complete, kindly send me as soon as possible copies of your medical-practice acts, reports (as complete files as convenient), circulars, or other documents that will aid in tabulating and recording the work of the various boards. These reports, etc., will be carefully kept on file for future use and become the foundation of a history of State medical examining and licensing boards and the work done. From time to time you will be communicated with upon matters of mutual interest, and I trust you will, in turn, keep this office informed of all matters of importance by communications, reports, circulars, etc. We have a most important duty to perform, and it will succeed if all will enter into it with zeal and determination. The next meeting will be held in San Francisco during the meeting of the American Medical Association.'

The Postponement of the International Medical Congress.—The *Lancet's* Rome correspondent, under date of August 3d, says: 'This announcement (of the postponement) has fallen on the Italian public, professional and non-professional, like a bombshell, because when (as duly reported in the columns of the *Lancet*) a 'pilot-balloon' was started to similar effect last spring it was, after going the round of the European press, contradicted on authority by the Secretary General, Dr. E. Maragliano. 'Certain political journals' were, in that official contradiction, credited with having launched the 'ballon d'essai' in question, and once more the world relapsed into the belief that, in Dr. Maragliano's words, 'the date of inauguration was definitively fixed for September 24th.' Even this morning (the 3d inst.) the leading journal of Rome, the *Opinione liberale*, was still without official intimation of the 'ordine del giorno' given above and declined to believe an early anticipation of it published in a contemporary. 'On inquiry,' said the *Opinione liberale*, 'at the Direzione generale di sanità we were assured that "finora" (that is, up to the eve of the 3d inst.) no decision had been taken, but that certainly, if "le malattie infettive" (infectious diseases) were to continue in Russia, in France, and in other countries, the International Medical Congress would be postponed.' In its issue of to-day the *Opinione liberale* informed its readers that, 'nevertheless'—that is, even if, the congress were postponed—the Exposition would still be held, and then it proceeded to give a glowing account of the labors *ad hoc* of the superintendent, Professor Pagliani, and of his coadjutors, Professor Bentivegna, Dr. Sambon, and the engineer, Signor Borlenda; but later, in its 'ultime notizia,' the *Opinione liberale* had to admit the truth of what its contemporary had foreshadowed and to announce the postponement till April next of congress and exposition alike. As I have indicated, this change in the time of meeting of such an ecumenical gathering has had a startling effect and has already disturbed the arrangements of a number of allied congresses which had fixed their dates with reference to this supreme one. The International Congress of Otolaryngology, for example, the fifth of the series, which was to have attracted the medical world on its way to Rome in September next and to have been held in Florence just before its great sister met in the capital, has also had to postpone its meeting. As to the disturbance of the long-adjusted arrangements of representatives from the New World and the Antipodes, I can but hope that the telegraphic agencies will have forewarned them in time of the futility of starting for Rome this year. The inference, however, seems inevitable that it was only in the most imperative necessity—in which it found itself, as stated, in agreement with the other European committees—that the Comitato Ejecutivo could have ventured at the eleventh hour to countermand an undertaking for which such elaborate preparations were in progress and in which so many distinguished consultants and teachers, whose time is so precious, had pledged themselves to take part.'

The *British Medical Journal* proposes our approaching Pan-American Medical Congress as a substitute for the one that has been postponed. It says editorially:

'The postponement of the International Medical Congress at Rome will come as a great disappointment to a great number of British members of the medical profession, who proposed to combine the scientific interest of a congress with the amenities of a holiday in Rome, and the holiday arrangements of many medical

men are thus left open for rearrangement. It will probably have suggested itself to many that this will afford an opportunity for substituting a similar holiday of mixed scientific interest and recreation by taking the opportunity thus afforded of visiting the Chicago World's Fair, and of combining with that unique experience a visit to the Pan-American Medical Congress at Washington, which will be held on September 5th. All British medical men will receive a warm welcome at this International Congress of Medicine, toward the funds of which for purposes of hospitality and organization the American Government have largely contributed. The secretary of the Pan-American Congress is Dr. Read, Cincinnati, Ohio, who will be happy to afford every information and facility to European visitors. The Cunard steamer *Campania*, the fastest boat on the ocean, which starts from Liverpool on August 19th, will probably land her passengers in New York on the night of the 25th, and the *Umbria*, which sails on Saturday, the 26th, will probably land them on the morning of September 2d. Passengers sailing by either ship would arrive in good time for the congress. The visit to the World's Fair at Chicago may be made either before or after the congress, according as may be most convenient. If a considerable number of medical men desire to combine for the journey it is probable that some special arrangements might be made for their convenience by the Cunard Steamship Company."

The City Board of Health's Bacteriological Work in Diphtheria.

The following is the report of the chief inspector in pathology, bacteriology, and disinfection, dated August 15th and addressed to the president, the Hon. Charles G. Wilson:

Some months ago the Health Board determined to increase the facilities at its command for the diagnosis and treatment of diphtheria by perfecting arrangements for the bacteriological examination of all cases of this disease that came directly under its care, and further determined to proffer to all physicians in this city the aid of a skilled bacteriologist in the diagnosis of all suspected cases of this disease. This course, it was thought, would not only bring the work of the board in its relations with diphtheria abreast of the most recent discoveries, and would be of the greatest practical value, but would also be gladly welcomed by the physicians of the city, as it placed at their command such skilled assistance in the diagnosis of this disease as they could not otherwise secure.

The step constituted a very important advance, quite in harmony with the previous action of the board in dealing with contagious diseases, and was suggested by recent bacteriological investigation conducted in the hospitals for contagious diseases both in this city and in Europe. These investigations have shown that a considerable proportion of the pseudo-membranous and exudative inflammations of the throat and upper air passages, commonly considered as diphtheria and having the anatomical appearances found in diphtheria, are not true diphtheria, but are of a far less serious nature. These latter cases may be called false diphtheria. The importance of the separation of the cases of true from those of false diphtheria is due to the fact that, while in true diphtheria the mortality is very high and the danger of transmission to others is great, in false diphtheria the mortality is very low and the danger of infection slight.

The distinction between true and false diphtheria, though often difficult or impossible without the aid of a bacteriological examination, can in this way be made within a few hours.

Early in May, therefore, the board appointed Dr. William Hallock Park inspector and bacteriological diagnostician of diphtheria. Dr. Park had peculiar qualifications for the discharge of the duties of this position, derived from a long study and large experience in this particular line of bacteriological work.

Since May 6th the department has been prepared to make use of bacteriological cultures in all cases of suspected diphtheria occurring in the city, and has announced to physicians that it would make such examinations in all cases reported to the department unless for any reason the physician in attendance preferred not to have them made. Up to this time, however, no examinations have been made without the specific consent or request of the physician in charge, excepting in cases about to be removed to the Willard Parker Hospital.

As many physicians were not familiar with the work or its results, it has required the expenditure of no little time and labor to disseminate the necessary knowledge regarding it. The number of cases examined as compared with the whole number reported has been comparatively small, but has been gradually increasing, as the appended table will show. From this date a very large proportion of all cases will no doubt be examined.

The new work has been received by the medical profession with almost universal and enthusiastic approval. Arrangements have been made with a number of druggists scattered throughout the city to keep a supply of the culture tubes, as furnished by the department, for inoculations, so that they will be within convenient reach of physicians when they desire to themselves make the inoculations. These tubes are furnished without charge. After being inoculated they are returned to the station from which they were obtained, and are collected each evening by the department collector. A report of the examination is forwarded the following morning to the physician. When the physicians request it, the inspectors of the department make the inoculations.

Of the 431 cases thus far examined, about one third have proved to be false diphtheria. This is a much smaller proportion than exists during the winter and spring months, when, as experience has shown, fully half of the cases admitted to the Willard Parker Hospital are false diphtheria, and probably of those reported to the department a still larger percentage are of this form. Cases which prove to be false diphtheria will not receive further detailed attention from the health department. Cases, on the other hand, which prove to be true diphtheria will be subjected to the usual rules and regulations covering contagious diseases.

It seems hardly necessary to refer to the great influence that these examinations will have in giving precision to the work of the department and in reducing the labor required in dealing with this disease. It is the further purpose of the department to enlarge the scope of the work to include a careful study of the best measures to be employed in the treatment, disinfection, and prevention, of diphtheria.

A large number of inquiries have been received from sanitary officers in other cities concerning the methods employed in this work, and already there are indications that the initiative step taken by the New York City Health Department will be followed by other cities both in this country and in Europe.

I have the honor to present the following detailed report of the cases examined each week since May 6th, with the results of these examinations:

Report of the Number of Bacterial Cultures obtained from Cases of Suspected Diphtheria since May 6, 1893.

WEEK.	Number of cultures obtained and examined of suspected diphtheria.	True diphtheria.	False diphtheria.
May 6-13.....	10	4	6
" 13-20.....	8	6	2
" 20-27.....	16	10	6
" 27 to June 3.....	18	12	6
June 3-10.....	26	20	6
" 10-19.....	38	28	10
" 19-26.....	48	33	15
" 26 to July 3.....	30	19	11
July 3-10.....	29	23	6
" 10-16.....	41	30	11
" 16-23.....	27	21	6
" 22-29.....	29	20	9
August 1-8.....	42	29	13
" 8-15.....	69	46	23
	431	301	130

The American Social Science Association.—The Education Department of the American Social Science Association meets in Saratoga on September 5th and 6th. Mr. Hamilton W. Mabie will make the open-

ing address. This will be followed by Mr. Edward Fisher's paper on The Seamy Side of the Kindergarten. Dr. G. Stanley will speak on American Colleges and their Work. Dr. Louise Fiske Bryson will read a paper on The Education of Epileptics. Dr. Frederick Peterson will present a report on Recent Progress in Medicine and Surgery. Dr. Mary T. Bissell has promised a paper on Athletics for City Girls; and there will be a discussion of hygiene and sanitation connected with school life.

Change of Address.—Dr. C. N. Hammond, from Bentley Creek, Pa., to Angelica, N. Y.

The Death of Dr. Norris M. Carter, of Brooklyn, occurred somewhat suddenly on the 11th inst. The cause of his death is reported as neuralgia of the heart subsequent to heart trouble of long standing. He was born near Belfast, Ireland, fifty-two years ago. While yet a youth he came to America, and prepared himself for his profession at Albany. He was graduated in 1859 at the medical school at that place. During the war he served as surgeon of volunteers. His career in Brooklyn was exceptionally successful.

The Death of Dr. William S. Hurd, of Paterson, N. J., on the 18th inst., removes a well-known practitioner. He was a native of Fishkill Landing, and in his forty-seventh year at the time of his death. He was an alumnus of the Medical Department of the University of the City of New York of the class of 1877. He had been city physician and coroner.

The Death of Professor J. M. Charcot, the great neurologist of Paris, is reported by cable to have occurred at Morvan on the 15th inst. Charcot was born in Paris in 1825.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 6 to August 19, 1893:*

GLENNAN, JAMES D., First Lieutenant and Assistant Surgeon, is granted leave of absence for twenty days, to take effect upon the conclusion of his examination for promotion.

FLAGG, CHARLES E. B., First Lieutenant and Assistant Surgeon, will proceed to the Yosemite National Park, California, for duty with Troop I, Fourth Cavalry, relieving WOOD, LEONARD, Captain and Assistant Surgeon. Upon being thus relieved, Captain Wood will return to his station, the Presidio of San Francisco, California.

HARRIS, HENRY S. T., Captain and Assistant Surgeon, Fort Keogh, Montana, is granted leave of absence for one month, to take effect about August 16, 1893.

LAUDERDALE, J. V., Major and Surgeon, is hereby granted leave of absence for one month, to commence about September 5, 1893.

ADAIR, GEORGE W., Major and Surgeon, is granted leave of absence for three months, to take effect on or about September 4, 1893.

KEFFER, FRANK R., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month and fifteen days, to take effect when his services can be spared.

WYETH, MARLBOROUGH C., Captain and Assistant Surgeon. By direction of the Acting Secretary of War, the extension of leave of absence, granted on account of sickness, is still further extended two months on account of sickness.

TAYLOR, MARCUS E., Captain and Assistant Surgeon, having been found incapacitated for active service by an Army Retiring Board, will proceed to his home and report thence by letter to the Adjutant General of the Army.

BRADELEY, ALFRED E., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month.

SWIFT, EUGENE L., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect upon the return from detached service of FISHER, HENRY C., First Lieutenant and Assistant Surgeon.

WOOD, M. W., Captain and Assistant Surgeon, is granted leave of absence for one month, to commence about September 1, 1893.

TILTON, HENRY R., Major and Surgeon, is granted two months' leave of absence when relieved from duty at Fort Wayne, Michigan.

JANEWAY, JOHN H., Lieutenant Colonel and Deputy Surgeon General.

By direction of the President, his retirement from active service this date, by operation of law, under the provisions of the Act of Congress approved June 30, 1882, is announced.

McVAT, HARLAN E., First Lieutenant and Assistant Surgeon, San Carlos, A. T., is granted leave of absence for one month, to take effect when relieved by another medical officer, with permission to apply for an extension of fifteen days.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending August 19, 1893:*

MOORE, A. M., Surgeon, and RUSH, C. W., Passed Assistant Surgeon. Placed on the retired list.

KENNEDY, R. M., Assistant Surgeon. Promoted to Passed Assistant Surgeon.

CLARK, J. H., Medical Director, WHITE, C. H., Medical Inspector, and NEILSON, J. L., Surgeon. Ordered as members of the Examining Board.

GATES, M. F., Passed Assistant Surgeon. Detached from the Naval Hospital, Portsmouth, N. H., and detailed as Recorder of the Naval Examining Board, September 1st.

WENTWORTH, A. R., Passed Assistant Surgeon. Ordered to the Naval Hospital, Portsmouth, N. H.

GORGAS, A. C., Medical Director, SIEGFRIED, C. A., Surgeon, and BEYER, H. G., Passed Assistant Surgeon. Ordered as delegates to the Pan-American Medical Congress.

MACKIE, B. S., Surgeon, and HENNEBERGER, L. G., Surgeon. Ordered to the Naval Academy to examine applicants for admission.

Society Meetings for the Coming Week:

MONDAY, September 4th: Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Corning, N. Y., Academy of Medicine; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society.

TUESDAY, September 5th: Pan-American Medical Congress (first day—Washington); American Dermatological Association (first day—Milwaukee); Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburg Medical Association; Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

WEDNESDAY, September 6th: Pan-American Medical Congress (second day); American Dermatological Association (second day); Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton); Bridgeport, Conn., Medical Association.

THURSDAY, September 7th: Pan-American Medical Congress (third day); American Dermatological Association (third day); New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Obstetrical Society of Philadelphia.

FRIDAY, September 8th: Pan-American Medical Congress (fourth day); Yorkville Medical Association (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties.

Letters to the Editor.

THE PRESERVATION OF RUBBER CATHETERS.

3 MARLBOROUGH STREET, BOSTON, August 7, 1893.

To the Editor of the New York Medical Journal:

SIR: In your issue of July 22, 1893, Dr. J. W. S. Gouley, in his interesting Notes on American Catheters and Bougies, mentions the injury done to rubber catheters by fat of all kinds.

I have found by experiment that, for some reason, castor oil

does not injure these catheters as other fats and oils do. For a time I advised the use of it to my patients, where economy was an object, and they found that they could use a catheter a very long time under its use. I could not, however, render it antiseptic without employing some agent which was more or less irritating to the urethra. I have, therefore, lately used only the vaseline which comes in collapsible tubes, and which is thus easily kept clean and is readily transported; and patients find that, if they wash the catheter very carefully with soap after each use, the swelling of the catheter is so slow to appear that the expense of keeping themselves supplied is a trifling matter.

A. T. CABOT, M. D.

Book Notices.

On Chorea or St. Vitus's Dance in Children. By OCTAVIUS STURGES, M. D., F. R. C. P., Senior Physician to the Hospital for Sick Children, and to the Westminster Hospital. Second Edition, revised and partly rewritten. London: John Bale & Sons, 1893. Pp. xi-188.

WHEN the first edition of this little work appeared, in 1882, it was considered one of the most valuable monographs on the subject that had been published. In this second edition the author has given the work a general revision. He has materially amplified the section on the symptoms and the diagnosis. In the chapter on heart symptoms he has modified his former conclusions, and now states that papilliform endocarditis affecting the mitral valve is the cardinal anatomical feature in chorea, wholly apart from rheumatic endocarditis, though he believes that the heart symptoms of chorea are best explained upon the hypothesis of some pathological kinship between it and rheumatism.

There is a brief chapter on chorea as observed in school children, with simple directions for its early diagnosis. The author has also modified his earlier views regarding the relation of chorea and rheumatism, both of which he believes to be members of a pathological group that has arthritis for a common factor, though further investigation is necessary to determine what, in the last analysis, is the underlying source of all these diseases. He characterizes as feebleness of purpose that tendency to appeal to one remedy after another that is so often considered an indication of fertility of resource, and considers that moral treatment in all its phases is of the greatest use. The volume is one that will give the reader a great deal of useful information.

History of the Life of D. Hayes Agnew, M. D., LL. D. By J. HOWE ADAMS, M. D. Philadelphia and London: The F. A. Davis Company, 1892. Pp. vii-376. [Price, \$2.50.]

DR. HOWE ADAMS has performed a labor of love and done it well in this biography of his ideal physician. To those who did not know Dr. Agnew it might seem a fulsome work, but to those who have sat at his feet and known him well the encomiums fall far short of his merits, and, in the face of his personal character, seem hollow and vain. No one feels this more than Dr. Adams. Dr. Agnew's life was great in its simplicity, sweet charity, and professional integrity, yet not abounding in crises and public triumphs. It was a life to know and be a part of rather than to write about. He was purely the architect of his own fortune, and this biography of him will lend encouragement to every man of energy, industry, and honesty of purpose.

Atlas of Electric Cystoscopy. By Dr. EMIL BURCKHARDT, late Assistant Surgeon to the Surgical Clinic of the University of Bale, and E. HURRY FENWICK, F. R. C. S. Eng., Surgeon to the London Hospital, etc. With Thirty-four Colored Plates, embracing Eighty-three Figures. London: J. & A. Churchill, 1893. Pp. 70. [Price, 21 shillings.]

THIS work is really a revision of the German edition of Burckhardt's work on electric cystoscopy. It is simply an atlas, containing thirty-four colored plates with eighty-three excellent delineations of the normal and pathological appearances of the bladder. There is no text whatever except what is necessary to explain the plates. The work would have been rendered much more valuable by inserting into it a review of electro-cystoscopy and a description of its technique.

BOOKS, ETC., RECEIVED.

A Chapter on Cholera for Lay Readers. History, Symptoms, Prevention, and Treatment of the Disease. By Walter Vought, Ph. B., M. D., New York. Illustrated. Philadelphia and London: The F. A. Davis Company, 1893. Pp. vii-107.

Reactions. A Selection of Organic Chemical Preparations Important to Pharmacy in regard to their Behavior to Commonly-used Reagents. By F. A. Flückiger, Ph. D., M. D. Translated, revised, and enlarged by J. B. Nagelvoort, Analytical Chemist, etc. Authorized English Edition. Detroit: George S. Davis, 1893. Pp. x-154.

Apparent and Actual Mortality. By F. D. Bullard, A. M., M. D., Los Angeles, Cal. [Reprinted from the *Southern California Practitioner*.]

Punctured Wounds of the Feet. A Report of Two Hundred and Three Cases treated at the Medical Bureau, World's Columbian Exposition, during the "Construction Period." June 1, 1891, to May 1, 1893. By S. C. Plummer, A. M., M. D. [Reprinted from the *Chicago Medical Recorder*.]

Report of a Case of Plastic Operation for the Repairs of the Inner Canthus. By W. H. Bates, M. D., New York. [Reprinted from the *Annals of Ophthalmology and Otology*.]

Report of Rectal Diseases. By W. O. Greene, M. D., Louisville, Ky. [Reprinted from the *American Practitioner and News*.]

Six Months' Medical Evidence in the Coroner's Court of Montreal. By Wyatt Johnston, M. D., Montreal, and George Villeneuve, M. D., Montreal. [Reprinted from the *Montreal Medical Journal*.]

Les verdicts de la cour du coroner du district de Montreal pour le premier semestre de 1893, au point de vue médical. Par les docteurs Wyatt Johnson, M. D., Montreal, et George Villeneuve, M. D., Montreal. [Extrait de *l'Union médicale de Montreal*.]

Des polypes de la cloison des fosses nasales. Par le Dr. Marcel Natier. [Extrait des *Annales de la Policlinique de Paris*.]
Faux rétrécissements de l'urèthre. Par le Dr. Reliquet et A. Guépin. [Publications du *Progrès médical*.]

Recherches sur le diagnostic du sang en médecine légale. Par le Dr. Gabriel Corin. [Extrait des *Annales de la Société médico-chirurgicale de Liège*.]

Ueber die Ursachen des Flüssigbleibens des Blutes bei der Erstickung und anderen Todesarten. Von Dr. Gabriel Corin, aus Lüttich. [Sonder-Abdruck aus der *Vierteljahrsschr. f. gerichtl. Medicin u. öffentl. Sanitätswesen*.]

Il magnetismo negli animali e nelle piante. Por Dott. Vincenzo Allara. Milano: C. Chiesa e F. Guindani, 1893. Pp. 6-9 to 138.

Fourteenth Report of the State Board of Health of Wisconsin. 1891-1892.

Miscellany.

The Use of Disinfectants in the Army.—In a circular dated August 9th, Surgeon-General Sternberg says:

'Requisitions received from time to time indicate that certain medical officers of the army are not well informed with reference to the use of disinfectants.

"It may be that the meaning of A. R. 1656 and of paragraph 36 of the Supply Table has been misunderstood.

"A. R. 1656. 'Carbolic acid, chloride of lime, sulphate of iron, corrosive chloride of mercury, solution of chlorinated soda, and other articles required as antiseptics or disinfectants in hospitals and for general use at military posts will be issued by the Medical Department upon the requisition of the medical officer.'

"Standard Supply Table, paragraph 36. 'Disinfectants for general post sanitation will be issued by the Medical Department upon the annual requisition.'

"The mistaken idea that disinfectants are required 'for general post sanitation' in the absence of any infectious material to be destroyed seems to be very common among officers and non-commissioned officers of the army, and should not receive support from officers of the Medical Department.

"The definition of a disinfectant adopted by the Committee on Disinfectants of the American Public Health Association in 1885 has now been generally accepted by well-informed sanitarians. This is as follows:

"'The object of disinfection is to prevent the extension of infectious diseases by destroying the specific infectious material which gives rise to them. This is accomplished by the use of disinfectants.

"'There can be no partial disinfection of such material; either its infecting power is destroyed, or it is not. In the latter case there is a failure to disinfect. *Nor can there be any disinfection in the absence of infectious material.*

"'Antiseptic agents also exercise a restraining influence upon the development of disease germs, and their use during epidemics is to be recommended when masses of organic material in the vicinity of human habitations can not be completely destroyed, or removed, or disinfected.'

"At the conclusion of the Lomb prize essay, published by the American Public Health Association in 1885, the following propositions are formulated:

"'Disinfection consists in extinguishing the spark, killing the germ, which may light up an epidemic in the presence of a supply of combustible material—filth.

"'The object of general sanitary police is to remove this combustible material out of the way, so that no harm may result even if the spark be introduced.

"'Antiseptics and deodorants are useful when it is impracticable to remove offensive organic material from the vicinity of human habitations, but they are a poor substitute for cleanliness.'

"Chloride of lime, carbolic acid, and mercuric chloride are issued by the Medical Department for use as disinfectants, properly so called. A solution containing four per cent. of good chloride of lime, or five per cent. of carbolic acid, is suitable for disinfecting the excreta of patients with cholera or typhoid fever, or the sputa of patients suffering from diphtheria, scarlet fever, or tuberculosis. The floors, furniture, etc., in rooms occupied by patients suffering from an infectious disease may be washed with a two-per-cent. solution of carbolic acid, or with a solution of mercuric chloride of 1 to 1,000. Soiled bed linen, underclothing, etc., used by such patients should be immersed in one of the above-mentioned solutions before it is sent to the laundry. *But, in the absence of any infectious disease, these disinfecting agents are not required, and their expenditure for purposes of general post sanitation is not authorized.*

"Sulphate of iron and other cheap antiseptics and deodorants may be used when necessary. But the necessity for their use is a reach upon the sanitary police of a post and should only be required under exceptional circumstances.

"The alvine discharges of healthy persons do not require disinfection, and when properly disposed of do not require treatment with any chemical agent whatever. If water-closets or earth-closets are offensive, this is due to faulty construction, to insufficient supply of water or of dry earth, or to neglect of ordinary cleanliness. The attempt to remedy such defects by the systematic use of antiseptics is expensive and unsatisfactory in its results.

"The same is true of foul drains, bad-smelling urinals, accumulations of garbage, etc. The proper remedy for such conditions is cleanliness and strict sanitary police.

"When accumulations of organic material undergoing decomposition can not be removed or buried, they may be treated with an antiseptic solution or with freshly burned quicklime. Quicklime is also a valuable disinfectant and may be substituted for the more expensive chloride of lime for disinfection of typhoid and cholera excreta, etc. For this purpose freshly prepared 'milk of lime' should be used, containing about one part by weight of hydrate of lime to eight of water.

"During the prevalence of an epidemic, or when there is reason to believe that infectious material has been introduced from any source, latrines and cesspools may be treated with milk of lime in the proportion of five parts to one hundred parts of the contents of the vault, and the daily addition of ten parts for one hundred parts of daily increment of faeces.

"While the faeces of healthy individuals in privy vaults or on the surface of the soil are innocuous, it is well known that epidemics of cholera, typhoid fever, and camp diarrhoea are usually due to the contamination of drinking-water or food by micro-organisms contained in the excreta of persons suffering from these diseases. This may occur as the result of direct contamination of the water supply, and probably also by the transfer of infectious material to the surface of meats, milk, and other articles of food by flies which have recently been in contact with infectious excreta. This source of infection has not heretofore received proper consideration, and the probability of its occurring when the faeces of patients suffering from the diseases mentioned are deposited upon the surface of the ground, or in open privy vaults, calls for extreme care, especially during times of actual or threatened epidemic. In camp, where it is necessary to use open pits as latrines, dry earth, quicklime, or wood ashes should be frequently thrown upon the surface of faecal accumulations.

"All known disease germs are destroyed by the temperature of boiling water, maintained for a few minutes. This being the case, the destruction of articles of clothing which can be subjected to the action of boiling water or of live steam without material injury is unjustifiable. *Exposure to steam under considerable pressure, or to superheated steam, which requires a specially constructed steam chamber, is an unnecessary exaction, free exposure to flowing steam for one hour being sufficient to secure disinfection.* But this applies only to articles which can be freely exposed in a steam chamber, and not to mattresses, pillows, bundles of clothing, etc. As a rule, immersion in boiling water for half an hour will be the most convenient and most economical method for disinfecting articles of clothing, bed linen, blankets, etc.

"When hair mattresses and pillows require disinfection, it will be necessary to open them up, either before or after immersing them in boiling water or in a disinfecting solution, in order that the hair may subsequently be thoroughly dried. When this is done, the fact will be reported to the medical director of the department, and instructions will be given as to the disposition of the material.

"When of little value, or in the absence of proper facilities for disinfection, mattresses, pillows, and clothing may be destroyed in compliance with A. R. 1625; but the destruction of articles which can be disinfected without material injury by immersion in boiling water or a disinfecting solution is not authorized."

The Chinaman as a Surgical Patient.—An interesting article on Surgery in China is running through current issues of the *China Medical Missionary Journal*. It is contributed by Dr. John C. Thomson, of Hong Kong. From the installment that appeared in the June number of the journal mentioned we extract the following:

"The Chinaman's fortitude under the surgeon's knife has been sub-

ject of remark ever since the surgeons of the Honorable East India Company first began to relieve surgical conditions with which at their stations in China they were brought into contact, and continues to excite admiration now that medical missions are carrying Western surgery into many regions of the Chinese empire. The trait is of course less noticeable now than in the days anterior to the age of chloroform, but even now it is frequently put to the test in circumstances where surgeons in isolated situations are compelled to undertake operations unaided, or where otherwise the exhibition of chloroform is contraindicated, and in the minor operations of surgery. When so tested, the Chinaman will endure without flinching a degree of pain that to the more highly developed nervous system of the Westerner would be well-nigh impossible. Most of the numerous entropion operations in the Alice Memorial Hospital, for example, are performed without the use of any anæsthetic whatever, and one usually sees the minute manipulations involved endured throughout without the quiver of a single muscle, on the part of women as well as men.

"To the Chinaman, indeed, with his lack of education to the knife, the thought of cutting is repellent in the extreme, and I have many a time seen a stalwart man burst into tears at the bare proposal of incision of an abscess, but, once his mind is made up to operation, the case is as I have stated it, and he far surpasses most other nationalities in his courage and endurance.

"The remarkable recuperative power of the Chinese after surgical injuries is unanimously testified to by all who have had to deal with them, and my experience of them goes to confirm this generally received opinion.

"The fact is to be discounted that, in the case of the poorer Chinese, a prolonged course of low living and practical starvation has frequently added its results to the original trouble (while the native practitioners are doing their best or worst) before the case is submitted to the Western surgeon, and this materially affects the progress of many of our patients; but, *ceteris paribus*, recovery and convalescence are very much more rapid and complete in the average Chinaman than in the average Englishman.

"Reasons for this difference are not entirely obvious, but the opinion may be hazarded that the simpler feeding habits of the Chinese, the rare occurrence of albuminuria or glycosuria, and their equable mental constitution, form at least some of the causes of the higher vitality of their tissues. The popularly accepted notion that the Chinaman lives on rice is indeed very far from the truth, since even the poorest manage to add a few green vegetables and a little fish or pork to the rice, which is the staple national diet; but, taken all round, the Chinaman's food is certainly more simple, and probably more nutritious, than the food of an Englishman under analogous circumstances, albeit his habit of consuming it wholesale renders him specially liable to dyspeptic troubles. His use of alcohol is also much less injurious to his tissues than is its use by a large proportion of Europeans. The native spirit, samshoo, is very extensively consumed, but it is invariably in minute quantities and never excepting with meals, intoxication being a thing practically unknown in China. Depending on this, doubtless, is the comparative rarity of albuminuria among the Chinese. Professor Grainger Stewart estimates the presence of albuminuria in Great Britain at 24 per cent. among the sick and 10.8 per cent. among the presumably healthy, yet in the Alice Memorial Hospital the proportion of cases showing the faintest traces of albumin does not exceed 5 per cent., and glycosuria is rare in the extreme. The tranquillity of the Chinese mind is proverbial. A Chinaman is never in a hurry. Provided he be given a hope of ultimate relief, it rarely matters to him whether his stay in hospital is to extend over a week or a month, and this absence of all worry probably goes far, along with the other facts I have stated, to account for the kindly reaction of his tissues under the surgeon's knife."

"In close relation with the Chinaman's habit under and after operation is the reaction of the Chinaman's system under the influence of anæsthetics.

"My Edinburgh training regarding chloroform having been fully confirmed by the results arrived at by the Hyderabad Commission, I have never used any other general anæsthetic, so that my experience of

chloroform administration to the Chinese now extends over many hundreds of cases, and I have not seen one in which it has been followed by harmful results.

"The Chinaman passes much more slowly under the influence of chloroform than the average Englishman, but usually without any of the excited stage through which the latter frequently passes. Any talking or struggling is quite exceptional. He passes, too, more readily from under its influence, so that its administration requires to be more continuously maintained. He is much less liable to the nausea and vomiting that so frequently follow the use of the drug elsewhere, and I certainly have never seen it in its severer forms since coming to China. In a word, it is a safer and a more agreeable task to administer this general anæsthetic to the Chinaman than to the Englishman, but for the one drawback that the time the former takes to yield to its influence is sometimes trying to one's patience and wasteful of one's time.

"As to *local anæsthetics*, the ether spray has in my hands been useless, either on account of the climate or peculiarity of the Chinese, but cocaine I find a perfect anæsthetic for purposes of minor surgery, and have not known any injurious results attend or follow its use.

"Having considered the Chinaman from the point of view of operative surgery, I shall confine my further notice of his surgical characteristics to a mention of four of the occasional sequelæ of operation from which he enjoys a comparative exemption.

"Erysipelas is seldom met in South China, being in some ports quite unknown, and it is also infrequent in the North, though there in warm winters it occasionally tends to become epidemic. In the Canton Hospital Report for 1874 Dr. Kerr remarks that he had up till that year seen but one case in a twenty years' very large experience. I have never seen it follow operation, and in the three or four cases I have met during the past three years, all in the face and scalp, no breach of surface could be traced as the starting point excepting in my last such case.

"Tetanus is also infrequent in adults, though a vast proportion of the native infant mortality is caused by the form of it known as tetanus neonatorum. I have met but a single case. A man came from the country suffering from the effects of an explosion, having carried away the right hand a week previously, in which the stump was gangrenous and dysphagia already present. I amputated high in the forearm, and tried by means of general treatment to avert the tetanic symptoms, but failed, the patient dying in a condition of general tetanus a few days later.

"Hæmophilia is extremely rare in China. One or two cases are on record, but these the hæmorrhagic diathesis present in anything like the proportion in which it exists in other regions it must have much oftener presented itself at the many centers of surgical work now existing in the empire. I have personally met no member of the family of bleeders.

"Urethral fever is unknown in China. Venereal disease, with its resultant strictures, is enormously prevalent, and probably nowhere in the world is vesical calculus more common than it is in the province of Kwang-tung, off the coast of which Hong Kong is situated (though curiously the disease is almost unknown elsewhere in China). Consequently in the Alice Memorial Hospital sounding and catheterization are events of daily occurrence; yet in not one single case have I observed the fever that so frequently is the concomitant of similar operations in Great Britain. The Chinaman's phlegmatic temperament seems to extend to his urethra.

"It does not come within my purpose in this paper to discuss at length the *special surgical conditions met with in the Chinese*, but within a single paragraph one or two remarks on the subject may suitably find place.

"The absence from China as yet of the railway, of heavy machinery, and of almost all mode of conveyance but by manual labor or by boat, makes the proportion of cases of serious accident—*e. g.*, of bone lesions—very small. Tumors abound, simple tumors of all varieties predominating, sarcoma coming next in frequency, and epitheliomata being comparatively seldom met with. Hernia is common, but strangulation or other form of intestinal obstruction rarely occurs. I have already incidentally remarked on the frequency of vesical and urethral calculus in Kwang-tung province and its absence elsewhere. All

forms of elephantoid disease abound, but, excepting in case of the scrotal form, surgery offers it small hope of relief. Deformities resulting from rickets I have seen only in one or two instances, but tubercular diseases, and especially of the hip joint, are painfully frequent.

"Finally, surgical conditions depending on chronic conjunctival inflammations are the most common of all that come under treatment."

Quasi-insanity in Children.—At the last meeting of the Medical Society of Pennsylvania Dr. Charles K. Mills, of Philadelphia, presented a paper on Some Forms of Insanity and Quasi-insanity in Children. In advance proof-sheets of the society's *Transactions* we find the following under the subheading of Quasi-insanities:

"In a philosophical sense sanity and insanity are relative terms whether applied to children or adults. Certainly not a few may be properly regarded as on the borderland between mental health and disease, and these are perhaps best classed as examples of partial or quasi-insanity, forms of mental disease which in a certain manner and degree have the attributes of insanity. Quasi-insanity better expresses the idea than such terms as partial or pseudo insanity, or borderland cases, for the prefix 'quasi,' as used in English, indicates that the thing spoken of resembles or has the attributes of something without being the latter in the full sense. Some of the best examples of quasi-insanity are to be seen in those suffering from those affections which are shown by morbid doubts and morbid fears, and have been described under many names, as *folie du doute*, introspective insanity; or as phobias in endless train—claustrophobia, agorophobia, pathophobia, pantophobia, etc. Some knowledge of these phobias and of what they import might be of value to many of my brethren not neurologists—to gynecologists and surgeons particularly. They are psychoses, which lead sometimes to oophorectomies and laparotomies, to uncalled-for operations and treatments of various sorts on all parts of the body. They are abortive or imperfectly developed mental disorders. Sometimes they are as transient in duration as they are limited in phenomena; but in other instances a few elementary deficiencies or disturbances may persist without much change or increase through life. Many of these cases, like certain morbid impulses, belong under the general head of paranoia. They have been described not only as morbid fears or phobias, and as morbid doubts or abulias, but also as emotional monomanias, and even as forms of neurasthenia. They are fundamentally dependent upon the domination of the mind by morbid concepts and insistent ideas.

"They are sometimes observed among young children, although more common after than before the period of puberty. Their most striking illustrations occur in those who have not been subjected to any physical or mental strain sufficient to break down a healthy organization. Persistent fear of the monomaniacal type occurring in children is rarely due to overwork at school, as is frequently supposed. The cause is generally in the child's progenitor or progenitors.

"Not infrequently several of the so-called varieties are present at the same time, in the same case, and some cases belong to a class which has been well described as pantophobia, or fear of everything.

"As to cases observed in comparatively young children, Hurd reports one from an account written by the patient herself. When about twelve years old she began to have strange fancies, as fearing that the blood flowing from a cut finger would harm those who came near her. Later, dressing, walking out of doors, eating, were all greatly interfered with through the same morbid ideas. She feared contagious disease because she might communicate it to others. The insistent idea changed from time to time, but seemed to spring always from the emotion of fear. She eventually recovered. Hammond cites from King, of Sedalia, Missouri, an interesting case of pyrophobia in a boy of ten years old. Day and night he was infested with fear of this kind. On one occasion when the morning was cool he succeeded after a contest with his mother in opening the stove door and pouring a bucket of water over the fire. He is said to have been cured by quinine, the bromides, and the use of evaporating applications to the head.

"A boy, eleven years old, developed what was practically a pantophobia, although his disorder exhibited itself chiefly as a pathophobia, or fear of disease. He was kept almost constantly in the hands of physicians. Sometimes his morbid ideas revolved around real affections of slight importance; sometimes his fears and suffering were

due purely to morbid conceptions and insistent ideas. Now his eyes were the source of morbid dread, and soon his limbs were the seat of rheumatic pain; he narrowly escaped, after solemn consultation, a laparotomy for 'typhlitis,' a case of strange metastasis, as the typhlitis was probably in his head. To a moderate degree he suffered from mysophobia, spending unusual time at his ablutions, teeth cleaning, dressing, and in the care and arrangement of his clothes. Anything in the nature of a symptom or a disease mentioned in his presence was likely to take possession of him. His morbid notions and apprehensions were fed and encouraged by the unceasing attention of members of his family. He was the only son of a widow, and was under the tutelage of a mother, a maiden aunt, and a grandmother, probably the worst board of management for a pathophobic boy that could have been chosen by perverse fate. He was practically cured by taking him from his home surroundings, disregarding his complaints, forcing him to do things on time and after the manner of others, at the same time carefully but not obtrusively looking after the general health.

"Another boy, at the age of ten, began to develop the scrupulous and mysophobic type of monomania; in fact, he was, as so many of these cases are, an illustration of an admixture of several of the so-called classes of morbid fears. He was constantly worrying about many things that he said and did in his intercourse with others. If left alone, he would spend hours in bathing and washing himself; and often imagined that he had been polluted or would contaminate others. The symptoms were in many respects like those of the lady described by Hammond, and to whose case he first applied the term mysophobia—who could touch nothing without being irresistibly impelled to wash her hands, and who in many other ways was tormented by the fear of contamination. This boy improved greatly under mental discipline, outdoor exercise, and careful tonic medication.

"It may be necessary sometimes to separate a form of *juvenile dementia* the result of *inherited syphilis* from idiocy and imbecility, whether of syphilitic or other origin, which may commonly be done by the fact that the dementia usually comes on after the child is four or five years old, and therefore when the mental condition has been determined not to have been that of idiocy. In rare cases, it happens that a juvenile or infantile dementia occurs when the child is two or three years old—so young that its true mental status has not been fully determined. With this word of caution as to the possibility of inherited syphilis showing itself in a child otherwise healthy in the first year or two of its life, most of the cases of this form of dementia will be comparatively easy of recognition. A family history of syphilis will often but not always be obtained. Often the upper incisors will be pegged and notched, and cicatrices at the angles of the mouth, and the characteristic physiognomy be present; the child will have attacks of keratitis, chorioiditis, or iritis, or a history of snuffles, or of a rash; and sometimes epilepsy will have developed."

The Evolution of Surgical Principles was the subject of Dr. G. H. Hume's address in surgery, delivered on August 3d before the British Medical Association. In the course of his address, for advanced proof-sheets of which we are indebted to the *British Medical Journal*, Dr. Hume said:

"It is our frequent boast that surgery has become, and is becoming, more scientific, and by an appeal to our results we justify the claim. But the science of surgery—and by the phrase we mean the principles of surgery—is nearly altogether the growth of the century that has followed Hunter's death, and its growth has been by no means one of continuous or steady progress—rather, as is usually the case in the development of scientific truth, it has been by fits and starts. The greater part of the work has been done in our own generation. And now, with regard to much of the art of surgery, it rests on principles so worked out and firmly established that the claim to scientific position can be made good. But with regard to much also we are still only struggling toward scientific truth. In speaking, therefore, of the development of surgical principles I shall endeavor to illustrate both classes—both those principles which, being in a sense perfected, have issued in enhanced success; and those also toward which we are still groping, and by which we have not yet been guided out of difficulty and uncertainty.

"The 'principles of surgery' is one of those elastic phrases which carry to our minds a fairly exact meaning, but to which we find it hard to give a concise definition. We certainly do not use it as the equivalent of theory. The surgeon who, thinking himself well versed in surgical principles, and therefore prepared to act in the best manner for the best reasons, would not consider himself justly described as a man of theory. And yet theories which become the motive or suggestion of surgical action are surgical principles, and these may be sound or unsound according to the character of the views upon which they are based. In so far as surgery is applied science, the data from which surgical procedures spring are in the strictest sense scientific principles; and we find that surgery advances by precisely the same methods as all other practical sciences. We have our inventions, our appliances, our practical details upon which an ever-increasing ingenuity and industry are expended. We have also sometimes our discoveries in medical or collateral science, which become the inspiration or rallying point of great practical advances. But the phrase covers more even than scientific data. The definite ends or objects of surgical action which are proper under given circumstances belong to the principles of surgery. So also do rules of procedure which the gathered experience of the past and present prescribes or sanctions. The mode of formation of surgical principles is therefore a double one. They may arise like a superstructure upon a foundation of scientific knowledge, or they grow down out of experience to be themselves part of the foundation. They are the mainsprings of action; and so far from being alien to practical efficiency, they are at once its inspiration and guide. One of the not least important surgical principles dictates scrupulous attention to the minutest practical detail; and he who, knowing that a life may hang on the integrity of a stitch, concerns himself anxiously about the method or material of a suture is only acting in faithful obedience to surgical principle.

"The mode of growth of scientific principles can find no better illustration than in our modern doctrines of surgical repair. The beginnings of these doctrines may be traced far back in the history of surgery. But it was by Hunter's work and in the pages of that *Treatise on Inflammation*—which, though pondered and labored through many previous years, as was Hunter's way, was not published till the year of his death—that the real beginning was made. Hunter's statement that 'primary healing takes place without inflammation' contains the germ of what we believe and act upon now. It did not, of course, go far enough. It defined the relationship between what was then, as it is now, ideal healing and inflammation, in the sense that no relationship can or does exist between them at all. But there is no such definite expression to be found in Hunter's writings with regard to the modes of secondary healing. Hunter, I think, believed, as did most of his successors down to the last few years, that a certain degree of inflammation was necessary for these delayed forms of healing. Indeed, from Hunter's time there was a falling away from the faith, and we find the most philosophical surgical opinion as represented by Travers holding that a 'subdued state of inflammation favors healing,' and that to 'supersede it would effectually retard or preclude' the process of repair.

"I am sure, sir, that to many in this audience it may seem to demand an apology that I should even mention in their hearing the name of inflammation. I may appear to be abusing my opportunities in carrying them back to their earlier days when inflammation was the bugbear of their surgical studies, a true surgical *pons asinorum*. But I plead in excuse that down to a recent period the ideas of healing and the ideas of inflammation seemed in the very nature of things to be inseparably interwoven. It turns out that they were only needlessly entangled, and ideas which in the time of their confusion belonged mainly to the region of theory have since proved to be matters of the most eminent practical importance. The process of disentangling began in and proceeded with the elucidation of the true nature of inflammation and its consequent suppuration. There was a time when the four classical symptoms of pain, heat, redness, and swelling summed up nearly all that was known of the process of inflammation. Then followed the anatomical era, the time most fruitful of bewilderment to the student, in which, thanks to rapid improvement in the methods of microscopical investigation, attention was concentrated in the blood

stasis, the changes in the tissues and in the vessel walls, and on the out-wandering of the white corpuscles. An intermediate stage followed this in which, clinically and experimentally, the suppurative processes were recognized to be infective in their nature. And this culminated on the period in which we now find ourselves when the whole process is demonstrated to be due to the agency of micro-organisms. One point, however, remains to be cleared up. Is the febrile access which follows an aseptic operation, sometimes sharp in degree though short in duration, to be looked on as the result of inflammation? There is no ground for supposing it to be an infective process the same in kind and differing only in degree from that which always tends to suppuration. If different in nature it should also be distinguished in name, and there is much to justify the proposal to restrict the word inflammation to those changes which result from the action of septic organisms, while the other and simpler process under some such title as traumatic reaction demands further examination for the clearing up of its intimate character. Such a defined use of the term would end the confusion which has hitherto attended the conception of inflammation as a disease, and would rest the idea to which the word corresponds on the sure ground of etiology.

"Naturally with the true knowledge of inflammation and suppuration have come clearer and more accurate views with regard to the process of repair. Not alone in primary adhesion but in all forms of healing it is seen that inflammation is never a help, and can only be a hindrance, and that if it occurs repair must take place in spite of it, or be delayed until it has passed away. We have gone back upon Hunter's dictum, only we have given it a more extended, or rather an unrestricted, application. The surgeon's part, therefore, is now not to treat but to prevent inflammation and suppuration, and the practical side of the scientific evolution I have briefly sketched is the antiseptic system."

The Utilization of Criminals for Experimentation.—Dr. W. A. Gordon, of Oshkosh, Wis., recently delivered a presidential address before the Brainard Medical Society in which he set forth some radical if not quite novel aspirations. From the address, as reprinted from the *Milwaukee Medical Journal*, we extract the following:

"Pettenkofer is studying cholera. The other day he wished to test the effects of certain cholera bacilli on the human body. But in all Europe there was no body he could use, and so he took his own.

"Thrice illustrious scientist! Sublime enthusiast!

"In every country in Europe are men waiting to be shot or hung. They should have been given to Pettenkofer. He should not have been allowed to risk his useful life. One Pettenkofer is of more value than all the unhung assassins on earth.

"In the United States between two hundred and three hundred persons are annually executed by law. To ruthlessly destroy the bodies of so many criminals, when they might be, and ought to be, used for the advancement of science, is one of the most notable extravaganzas of this utilitarian age. It is an absurd custom, inherited from our ignorant and savage ancestors who knew nothing of bacteria and the value of vivisections.

"The base Indian threw a pearl away
Richer than all his tribe."

"In the eyes of the devout physician this shameful, inexcusable waste of first-class physiological material is itself a crime. It is undoubtedly proper to exterminate murderers and rapists for the protection of society, as we do Canada thistles, rattlesnakes, and other noxious things; but the criminal is a man, and as such, even if he has forfeited his life, is entitled to die by some of the processes ordained by Nature for the destruction of human life.

"Benjamin Franklin said that a man is not fully born until he has passed through death. If this utterance of one of the most philosophic intellects the world has ever seen is true, every man has an inalienable right to die by some of Nature's methods. Then no convention has the right to decree the instantaneous annihilation of a human being. Death is supposed to be a profound spiritual process, whereby the soul is at least partially schooled for the momentous concerns of eternity. In that supreme hour the passions, prejudices, hopes, and fears of this

naughty world have lost their influence. The solemnities of the great hereafter fill the parting spirit with awe and expectation.

"Death is an experience laden with such great possibilities that no man should be willfully deprived of all the benefits it may bring to him.

"Electrocution and strangulation terminate life so quickly that the benefits that may accompany dying are lost.

"The condemned criminal is usually in the full tide of physical vigor, and until the last moment expects pardon or postponement. But when an invalid feels the skeleton hand of death upon his vitals, he knows there is no pardon and no escape.

"All forfeited lives should be ended gradually by some of God's methods.

"There should be established in several cities in this country prison laboratories or experiment stations, where men who have been condemned to death can obtain death at the hands of competent physiologists and pathologists. These institutions should be as secure as prisons and supplied with all the appliances and instruments of precision required by biological science in its most delicate examinations. Here all new remedies should be tested and all new treatments tried upon the bomb-throwers and cutthroats who are now so inconsiderately hanged. In these prison laboratories criminals should be infected with diphtheria microbes and then experimentally treated. They should be infected with the micro-organisms that produce typhus and typhoid fevers, cholera—in fact, all germ diseases—and then experimentally, rationally, and scientifically treated, and mankind have the benefit of the information obtained. There should be inoculation and other experiments relative to the nature and cure of cancerous affections. There should be an endless number of experiments upon the nature, prevention, and cure of the greatest destroyer of human life—tuberculosis.

"In these laboratories the limitations and the possibilities of pulmonary and cerebral surgery should be definitely marked out.

"There are various questions concerning the pneumonias that urgently require solution.

"The localization of the cerebral functions as to mental and moral, as well as motor, operations needs to be thoroughly studied by some of the masters of brain physiology.

"Gastric, biliary, and intestinal fistulae should be established for the exhaustive study of all digestive processes.

"One of the most fruitful fields for research would be the antagonisms of the schizomycetes. Sarcomas are said to be favorably modified by infections with erysipelas microbes. Cancer and tubercle are said to be incompatible.

"Numberless experiments on the reactions of bacteria upon each other need to be made.

"There are many experiments that can only be satisfactorily made on man. The use of dogs and other animals is accompanied by so many sources of fallacy that they can only be used for certain lines of work, chiefly of a mechanical character.

"Of course, in all these investigations the divine influences of chloroform, cocaine, ether, and opium would be employed whenever possible to prevent suffering in the subjects.

"The idea that malefactors should be favored with a painless and rapid death is a mere schoolgirl sentimentalism. Even if death were the end of all, there is no natural reason why the worst men should have the easiest deaths.

"Every experiment should be, and would be, conducted gently, the murderers treated courteously. They should be carved tenderly, but thoroughly.

"The hysterical, effeminate persons who constitute the anti-vivisectionist contingent should have the privilege of sending bouquets and confections to the victims, as they now do to every scurvy vagabond who is awaiting execution.

"The ministrations of the clergy should be encouraged. The abolition of the effusive and theatrical clerical exhibitions on the scaffold would be one of the reliefs to the world that this method should bring.

"A diminished amount of crime would undoubtedly follow. The melodramatic descriptions of 'game' deaths would not regale and encourage impending criminals. Dying in bed from a common, every-day

disease does not appeal to the dramatic element of the criminal mind. The gallows would be shorn of its fascination.

"When the profession, through its journals and societies, points out to the people the great benefits to society that can be obtained by the scientific use of forfeited lives, the public common sense will quickly turn to good account this source of profit to itself.

"The anti-vivisectionists themselves will probably come to favor this plan, for it would save some dogs from the knife, and they, valuing dogs more than men, would take the least of two evils.

"A large number of Christian people will undoubtedly favor it, because its soul-saving capabilities are greatly superior to barbaric strangulations.

"Scientists and humanitarians must approve of it on account of its many intrinsic excellencies.

"That knowledge of inestimable value to the present and all future generations of men can be obtained by the adoption of this scheme is certainly true."

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Lectures and Addresses.

ANNUAL ADDRESS OF THE PRESIDENT,

READ BEFORE THE
IOWA AND ILLINOIS CENTRAL DISTRICT MEDICAL SOCIETY.

By W. L. ALLEN, M. D.,
DAYENPORT, IOWA.

DURING the past twelve months we have watched anxiously the progress of the existing cholera epidemic in Europe. We have seen one of the most successful battles ever fought by scientific medicine with a dread disease; fought in New York Harbor and followed up in the city of New York by medical men who were hindered by the conflicting interests of numerous corporations, by personal appeals, bribes, and direful threats of thousands of passengers, by interfering officials, and malignant wirepullers. In August and September of 1892 there were 17,000 patients with cholera in Hamburg, of whom 7,600 died; there were 80,000 persons inspected at Quarantine in New York Harbor during the six weeks ending October 14th. As an additional source of danger, 76 died on the voyage from Hamburg and 44 in the harbor of New York. And yet from all these many sources of contagion only 11 isolated cases occurred in New York city, where, although widely separated in various parts of the city, the disease was stamped out and not one point of infection was left. Never was the country in greater danger, nor the battle more successfully fought and won. I am proud of the great achievement, and proud to say that the credit belongs to the faithful workers in scientific medicine—men who for the past thirty years have labored unceasingly to find the *cause* of each disease; men who have made post-mortems by the thousand; have examined each part infected by chemical tests and by the microscope; men who have ruined their health working over specimens of tuberculosis; have carried their apparatus and lost their lives in India studying the disease in its most dangerous strongholds—these men, the pathologists of scientific medicine, have been the ones to say the cause of cholera is the cholera bacillus. Only by quarantine of the individual and by killing of the germs by heat or strong and poisonous solutions can the disease be prevented.

For over two thousand years the allopathic and the homeopathic schools (the former called "the old" by the latter, which styles itself "the new school") have treated *symptoms*, and have never admitted a ray of light whereby we might work to prevent or finally blot out a given disease. Not one of the disciples of Hahnemann has succeeded in annihilating a single cholera germ.

Were the medical profession in India as well supported and backed up as the profession is in Germany and France, there would not be a case of cholera on the face of the earth. That unfortunate country, with its system of tanks and pools in which the inhabitants bathe and wash their clothes and from which they drink, with privy vaults on the borders of these same pools, with a germ-breeding climate, with religious ceremonies bringing together thousands of pilgrims from all parts of the continent—all of

these evils could be blotted out or corrected and cholera would practically disappear.

I desire now to call your attention to a disease that is troubling us continually—I mean, of course, diphtheria. During the past ten years there have been two thousand and sixty-eight cases of diphtheria in Davenport, with five hundred and eighty-four deaths therefrom, thus fifteen per cent. of all deaths being from diphtheria. During two years of this period thirty per cent. of all deaths were from this cause. This is very much worse than in New York city, where, although thirty per cent. of the diphtheria cases were fatal, the number of deaths from diphtheria was only five per cent. of the deaths from all causes.

I believe (1) that we do not, *as a rule*, treat the disease scientifically so far as internal medication is concerned; (2) that while we know how best to apply thorough local treatment, we do not carry out the same in a way satisfactory to ourselves, nor for the best interests of the patient, and we do not receive remuneration commensurate to the time, labor, and risk involved; (3) that our local boards of health are not given the power to aid as they should in preventing this disease. In support of these statements, (1) there is present in and about the pharynx, larynx, or nasal cavity, in all cases of diphtheria, the diphtheria bacillus. We do not suspect its presence until we can see an exudation on the parts affected. This bacillus does not, like the bacillus of cholera, invade the blood and pass into various internal organs, but there is at once produced by its existence locally in the throat a ptomaine which is quickly absorbed and which passes throughout the system. Our *internal* medication has been iron, quinine, alcohol, and strychnine as stimulants and blood restoratives, all of which are good; and as specifics, chlorate of potassium, corrosive sublimate or other preparations of mercury, benzoate of sodium, and salicylic acid. The use of potash has been entirely abandoned, it being inert and affecting neither the bacillus nor the ptomaine, and exceedingly liable to cause nephritis. The mercurial preparations show by their action on the bacillus, theoretically, the best advantage, but as yet we have no knowledge as to their effect on the ptomaine.

For nearly ten years these various mercurial preparations have been given a fair and thorough trial, and although their local effect is undoubtedly most favorable, I doubt if the results will show much if any benefit from their internal use. I may use the same argument against salicylic acid and benzoate of sodium, both of which are so generally used in Europe; we are consequently as we were ten years ago—without a specific. (2) Locally, we have most effectual weapons in peroxide of hydrogen, corrosive sublimate, and salicylic acid, used best as spray, and in the application to the throat of methyl violet, chloride of iron, etc. The nose and throat can be most thoroughly cleansed, the exudate entirely invaded and partially dissolved, by spray with peroxide of hydrogen, followed by corrosive sublimate. To do this it is not sufficient for the physician to pump a few minutes at the atomizer or swab out the throat with a wad of cotton, which reaches at most less than ten per cent. of the surface involved, knowing that

our object is to kill every single bacillus within the nasal cavity and pharynx within twenty-four hours of our first visit; to do this five or ten minutes with the spray or douche twice a day will not avail. To instruct the nurse or parents will be no better. To accomplish our object, every particle of exudation must be softened and thoroughly impregnated with the spray solution. You all know that you have occasionally done this, but not as a rule, because it requires you to devote almost your entire time to these cases for the first three or four days; to make four visits each day—visits requiring hard work and full of danger; it requires that you place yourself in such a position that you are certain to receive upon your face, hands, and clothing particles of infected material; it requires that you must, in justice to yourself, your family, and your other patients, wash and disinfect your hands and face, hair and beard, and change your clothing. This is no exaggeration. I believe that it is the duty of this society to see that such methods are adopted; that this can be done, that every case of diphtheria requires four visits a day by a physician who will personally perform or superintend the proper local treatment; that the time and danger thus involved should be compensated for in some measure by a fee of five dollars for every visit, which visit is to be one of personal work and danger, and that those who can not afford such treatment should be given it by the city or county. Look at the facts—look at the array of statistics! The New York papers have been full of reports of a severe epidemic of typhus fever, from which during the last six months there were 189 deaths; during the same time there were in New York 1,042 deaths from diphtheria out of 3,113 cases. Nothing is thought of this. Twenty years ago there were 85 deaths from cholera in this city, and since then there have been 4 deaths from small-pox. Our city and county authorities arose in alarm and built a pest house; it has been used but once since, although there have been 600 deaths from diphtheria—more than we shall be likely to have from small-pox and cholera during the next century. The mortality from cholera in Hamburg was less than forty per cent.; from small-pox it has recently been less than twenty per cent.; diphtheria is more fatal than the latter and nearly as fatal as the former; why, then, should not diphtheria cases be treated with the same consideration? At the last meeting of the Mercy Hospital Board a resolution was passed giving diphtheria such consideration and allowing the attending physician the same fee as in cholera and small-pox cases. (3) Our board of health should be given the fullest control over such cases. A great improvement has taken place in the last few years owing to better enforcement of quarantine regulations. The disinfection of diphtheritic houses should, however, be undertaken directly by the board. Such doubtful measures as sulphur fumigation should be discarded; to place reliance on a weak and doubtful measure is worse than no attempt, as a false security is felt and greater risk taken. The New York City Board of Health has just announced itself prepared and willing to make a microscopic examination of specimens of exudations of all diphtheria cases or cases suspected of being diphtheria,

thus making possible an early diagnosis of doubtful cases and insuring early and rigid quarantine. This is a step that will surely be followed by beneficial results. I would suggest that a map of our city be made at the end of every year marking the location of diphtheria. Especially would such maps be useful at this time, when certain dangerous localities are about to be supplied with sewers, and it is of importance that we should know the results that follow.

I urge the society to act promptly and forcibly in these matters, as I know of no others so urgently demanding our united efforts.

July 13, 1893.

Original Communications.

A NEW

DIAGNOSTIC SIGN OF TYPHOID FEVER.

By SIMON BARUCH, M. D.

THE excellent paper on the diagnosis of enteric fever in the *New York Medical Journal* of July 29, 1893, moves the writer to add an important diagnostic point which he regards as almost pathognomonic.

The great import of an early diagnosis of this disease is emphasized by the statement of Brand, Vogl, J. C. Wilson, and others that *the successful issue of the case is almost assured if the bath (Brand) treatment is inaugurated prior to the fifth day of the disease*. That this statement is justified by clinical evidence the writer has endeavored to impress upon the American medical profession. Since his paper before the New York State Medical Society in 1887, in which clinical evidence was based chiefly upon German and French practice, Wilson, of Philadelphia, Peabody, and Gilman Thompson, and Delafield, of New York, and Carl Sihler, of Cleveland, have offered American hospital and private records which confirm all that he alleged in the article of 1887. The latter was concluded as follows: "We stand on the threshold of an epoch in typhoid-fever treatment. The evidence before us is clear and incontrovertible. Upon our conscientious, unbiased, and fearless judgment and action rests the weal or woe of those who commit their lives into our keeping." The medical journals and hospital records of this country have verified this statement. Led by the eminent teachers who have cautiously tested and now recommend the Brand method, the American profession is slowly but surely becoming convinced of the marvelous difference in the mortality of typhoid fever induced by the early adoption of the bath treatment.

Since, however, the *diagnosis* of this disease is so difficult, how are we to act in this matter when a few days' delay are of such vital import to the patient?

The method adopted by the writer in hospital and private practice is as follows: So soon as a patient shows a rectal temperature above 102.5° in the morning and 103° in the evening for three successive days, especially if accompanied by headache, dullness, or apathy, he is placed into a full bath at 90°, which is reduced to 80°, with constant friction over the body. In three hours, the tempera-

ture still being above 102.5° , he receives another bath five degrees cooler. This is repeated until the temperature of the bath is 75° . If one or more of these baths fail to reduce the rectal temperature two degrees in half an hour, the diagnosis of typhoid fever is almost certain and the bath treatment is continued.

The point I desire to emphasize is that the *resistance of the rectal temperature to a bath of 75° for fifteen minutes with friction is an almost certain test of typhoid fever.*

I have diagnosticated a central pneumonia and an osteomyelitis by the bath; the records of these are to be found in the Manhattan Hospital case books.

In my last service—April to June, 1893—a woman was brought in with obscure symptoms and a history of over a week's illness. There being no spots visible, a diagnosis of typhoid fever could not be harmonized with the history. The baths given as here indicated reduced her temperature only about half a degree, and after the first bath the temperature *actually rose*. Despite the clinical history, a diagnosis of typhoid was made. This was confirmed by the appearance of a few spots two days later, and a large daily crop afterward. The patient passed through a severe type of the disease, with slight hæmorrhage, during which baths were stopped; heart failure, which was relieved immediately by affusions at 70° in a dry tub, and a pronounced *status typhoides*, which was removed by the bath and returned when the latter was suspended on account of streaks of blood in the fæces.

In another case, a gentleman, just arrived from Havre, whom I had the pleasure of seeing in consultation at the Hoffman House with Dr. P. Pease, in August, 1892, with physical signs of pneumonia, the temperature rose from 105° to 106° after a half-hour graduated (Ziemssen) bath (95° to 68°). Upon this ground I ventured the diagnosis of typhoid, which was confirmed in a few days by positive evidence. This patient proved so refractory under the baths that the latter were desisted from, because he had no relatives to whom we could appeal for sustaining our apparently heroic treatment.

In conclusion, I desire to refer to the clinical fact first pointed out in *The Use of Water in Modern Medicine*, that after the cold bath the mouth temperature shows a difference of one degree and a half to two degrees from the rectal, and not a half to one degree as is usual.

If the rectal temperature before and after a bath of 80° to 75° is not reduced at least one degree in half an hour, the diagnosis of typhoid may be safely made, if other symptoms point ever so slightly in this direction. Hence the diagnosis of this disease should no longer be obscure even in the first days of its course.

Movable Kidney with Hydronephrosis.—In an article on this subject, published in the *International Medical Magazine*, Dr. D. W. Graham makes the following conclusions: "1. Intermittent hydronephrosis is a frequent sequel of movable kidney. 2. Mental disquietude may be the only symptom of a movable kidney or hydronephrosis. 3. On the other hand, there may be functional disturbance of every neighboring organ. 4. Disturbance of the functions of the kidneys may be less marked than that of the other organs. 5. Hydronephrosis is a progressively destructive condition. 6. Nephrorrhaphy is indicated as a preventive measure even when not called for by the severity of the symptoms *per se*. 7. Hydronephrosis once developed is most effectually and safely treated by lumbar nephrotomy and drainage. 8. Nephrectomy for hydronephrosis is not warranted unless the kidney substance is completely destroyed or the ureter is impervious."

THE TREATMENT OF TYPHOID FEVER, BASED ON ITS ETIOLOGY.*

By T. J. SHUELL, M.D.,

PARNELL, IOWA,
MEMBER OF THE AMERICAN MEDICAL ASSOCIATION.

THE ætiology of typhoid or enteric fever has been under discussion for many years. Many writers, like N. S. Davis, have contended that the peculiar poison of typhoid fever originates *de novo* from the decomposition of organic matter.

To use Dr. Davis's own words (1): "Probably no fact is better established than that the disease under consideration (typhoid fever) generally originates from the use of air or water impregnated with some one or more of the products derived from the decomposition of organic matter."

The recent researches of Eberth, Klebs, Koch, Gaffky, and Vaughn have, in the minds of a majority of the medical profession, established the opinion that typhoid fever is due to specific micro-organisms or bacilli. From Eberth's careful investigation of this subject the term bacillus of Eberth is in vogue.

Probably many of us have seen cases of typhoid fever in which it would be extremely difficult to trace to a specific source; cases of persons who resided in the country districts and had not been off their farms for months or come in close proximity to cases of typhoid fever for years.

The advocates of the germ theory of the causation of typhoid fever maintain that the bacilli are brought into the system through the medium of food or drink. They cite numerous instances in which epidemics of typhoid fever resulted from the drinking water being contaminated by the specific poison of typhoid fever derived from the fæcal excreta. They hold that the bacillus of Eberth must be present in every case, and that, notwithstanding the pollution of drinking water by animal or vegetable decomposition, if the bacillus of Eberth be not found, typhoid fever will not follow.

As a compromise between the advocates of the germ and the anti-germ origin of typhoid fever, it is held by some (2) that the benign *bacillus coli communis* normally existing in the large intestine is converted, when out of the body, by thermal or atmospheric influences into the deadly typhoid germ—the bacillus of Eberth. Careful observations and clinical data have not thus far supported this theory.

Instances, however, like the Plymouth (3) epidemic of typhoid fever in 1885, carefully investigated by Dr. French and Dr. Shakespeare, two competent bacteriologists, would leave but little room for doubt that typhoid fever owes its causation to the presence of a specific micro organism.

Accepting, then—as do probably nine tenths of the medical profession—that typhoid fever is caused by the entrance of a specific micro-organism into the alimentary canal, I wish to go a step further and inquire whether the

* Read before the Des Moines Valley Medical Association, at Ottumwa, Iowa, June 15, 1893.

mere presence or mechanical irritation of the bacilli causes the nervous symptoms, or whether they are due to the ptomaines which the bacilli produce.

Professor Osler (4) says: "It has not yet been definitely determined whether the constitutional disturbances in typhoid fever depend upon the toxalbumins produced in the growth of the bacilli, though this is in the highest degree probable." Frederick P. Henry (5) writes: "It is now established that these substances (alkaloids or ptomaines), the toxicity of which is thoroughly proved by experiments on animals, are greatly increased in typhoid fever, and it is held by many clinicians that they are largely responsible for the group of symptoms known as 'typhoid.'"

Professor J. C. Wilson (6) writes: "It is probable that certain of the intestinal symptoms of enteric fever are due to a direct action of the typhoid bacillus, but the constitutional symptoms, including the fever, must be explained by the continuous action of a chemical poison produced by the growth and multiplication of these organisms within the body; especially is this true of the nervous and vasomotor phenomena, the feeble circulation, dirotism, relaxed capillaries, flushed face, dilated pupils, and delirium."

The fact that there is a prodromal or incubative stage of from a week to ten days in cases of typhoid fever—during which period there is a multiplication of the bacilli and a hyperplasia and thickening of Peyer's patches, more particularly in that part of the small intestine near the cæcum; and the further fact that the severe nervous symptoms and fever do not show themselves until the specific ptomaines are found in the large intestine—would induce one to believe that the symptoms known as "typhoid" are caused by the absorption of the poisons known as ptomaines, typho-toxines, or toxalbumins, and that the absorption takes place principally from the large intestine.

We can readily believe that the swarms of bacilli are but manufactories for producing the deadly ptomaines, which are carried onward by the vermicular action of the intestines and cause, by their mechanical irritation, diarrhoea; and by their absorption, fever, delirium, and nervous depression.

Reasoning from physiological facts, we know that all ingesta are retained but a short time in the stomach (from two to five hours), a comparatively short time in the small intestines, while in the large intestine they are retained in part for days and sometimes weeks.

The colon is admirably adapted as a receptacle for the *débris* of the intestinal tract. It is fitted out with sacculi or pockets, that may be likened to the stagnant bayous along our streams.

The lesions of typhoid fever are found mostly in the ileum, but the glands of the cæcum and colon, according to the best authorities, are affected in about one third of the cases (7). The manufactories for the production of the poisonous ptomaines are located principally in the small intestines, but the toxic products are stored away in the colon. Here, then, are the foci whence the poison of typhoid fever principally pervades the system.

Assuming this etiology of typhoid fever to be correct, a rational method of treatment at once suggests itself.

The indications for treatment will range themselves under three headings in the order of their importance.

1. To remove, at as early a date as possible, all ptomaines and decomposing substances from the colon.

2. To destroy or neutralize the effect of all micro-organisms above the cæcum by proper internal germicides, if any be found that will not impair the animal economy.

3. To enforce proper dietary and to treat rationally symptoms and indications as they may arise.

The first indication may be met only by thorough irrigation of the colon. But thorough irrigation of the colon can not be effected unless we pass a tube above the sigmoid flexure (8). The ordinary colon tube may be used, but I prefer a soft-rubber tube of a caliber of from 25 to 32, American scale, and about three feet in length. Excellent tubes for this purpose are manufactured by George Tiemann & Co., of New York city.

By attaching this to a fountain syringe and permitting, while it is being introduced, the stream to flow, it may readily be made to pass the sigmoid flexure of the colon and reach to, or near, the cæcum. The water used should be warm and aseptic, which can be effected by boiling. Only in exceptional cases should it be made antiseptic for fear of producing systemic poisoning. At least half a gallon of water should be injected in adults. The injection will distend the gut, remove the accretions from the sacculi, and result in such an evacuation of foul-smelling fæces intermixed with scybæ as will surprise both patient and physician. These injections to effect the most good should be employed early in the disease, before the high fever and severe nervous symptoms show themselves. They may be repeated, if necessary, at intervals of three days for the first week or ten days. The only precaution is that they should be used warily when the stage of necrosis of the glandular tissue is reached, as the solitary glands of the large intestine are affected in a large proportion of cases.

Having treated several cases of typhoid fever during the summer and autumn of 1892, I made this observation: that in every case in which I employed thorough irrigation of the colon at an early date such cases were rendered comparatively light. While such cases were not materially shortened in duration (though I believe a few were), yet they lost the typical typhoid picture of our text-books, the lassitude, the subulturn tendinum, the delirium, the dry and fissured tongue; and their convalescence was uninterrupted and rapid. I was not sufficiently impressed at the time with the irrigation method to employ it in all my cases. I treated several cases in accordance with the approved methods of our modern text-books. But it was the same old, old story! They got along just like the cases I had five years ago, just like the cases I had ten years ago. There were the same stupid expression of the facies, the same insomnia, the same delirium, the same nervous twitchings, the same dry, glazed, and cracked tongue. It is therefore my candid opinion that there has been no material improvement in the medicinal treatment of typhoid fever during the last decade, notwithstanding the use of our modern antiseptics and antipyretics.

In regard to the second indication—the employment of an internal antiseptic—probably calomel is our best, yet its continued use is depressing. It may, however, be used with advantage in the initial stages in full doses continued for a few days, and in small doses of from one twentieth to one twelfth of a grain for the first week or ten days. I believe that bismuth in large continued doses fulfills the indication of a non-deleterious internal antiseptic (9). I employ it in every case and continue it throughout the course of the disease.

I have used salol in doses of three to five grains every four hours and sulphocarbolate of zinc in doses of two or three grains. Sometimes I thought I received advantage from one, sometimes from the other, and many times I have been in doubt as to the benefit of either. With the so-called specific treatment, a combination of tincture of iodine and carbolic acid, long ago suggested by Roberts Bartholow (10) and recently revived by a writer in the *New York Medical Journal*, my experience has not been satisfactory.

With thymol, the drug so strongly advocated as the ideal intestinal antiseptic by Frederick P. Henry, my experience has not been sufficient to warrant me in expressing an opinion. Dr. Henry, however, speaks very highly of this drug when he says: "In a word, my experience has convinced me that the typical symptoms of typhoid fever will rarely develop if thymol is administered during the first week of the disease." Dr. Henry employs this drug in doses of two and a half to five grains in pill form every three hours.

Nitrate of silver has been strongly recommended by Dr. William Pepper (11), who reports a hundred consecutive cases without a single death. He begins this treatment early and continues it throughout the course of the disease. His dose is one fifth to one fourth of a grain in pill form. In cases in which I made trial of this drug I failed to note any appreciable benefit. I felt, however, that it might be of benefit during the ulcerative stage if its solubility was not such that it is extremely doubtful that it ever reaches the ulcerative areas to exert its topical action.

I now come to the third and last indication, the dietetic and symptomatic treatment of the disease.

By many the dietetic treatment of typhoid fever is regarded as of the most importance. The diversity among writers as to the amount of food is very great, though nearly all agree as regards kind and quality. Foods readily assimilable, principally digested in the stomach and leaving a small residue, are to be chosen. Milk is the ideal food for the typhoid-fever patient.

Assistant Surgeon R. M. Woodward (12), in his report for 1890, cites nineteen cases of typhoid fever treated almost exclusively by the milk diet. He prescribed nine pints of milk in the twenty-four hours and encouraged his patients to take the full amount. All his cases recovered.

Dr. Henry puts the daily amount of milk at two pints, Osler at three pints, and both urge careful observation daily that these amounts do not cause acute indigestion. My observation has been to the effect that the average adult will assimilate from three to four pints of milk daily. The amount assimilated one day may not be the same as

that of the next. Masses of curds found in the stools suggest overfeeding. Some kinds of milk are too rich in fats and should be skimmed. Beef tea and albumen water may be temporarily substituted.

The principal symptom to combat is pyrexia. Notwithstanding the employment of antipyretics, old and new, the thing I have most faith in is water. From a quart to half a gallon of pure cold water should be given to a typhoid-fever patient each day, whether he asks for it or not. I have never tried the Brand method, yet I believe in it and think a time will come when it will be more universally used. I do the next best thing—I employ the sponge bath. I order my patients sponged and rubbed every hour when the axillary temperature exceeds 102° F. This will promote perspiration, quiet or prevent delirium, and secure peaceful slumber.

Alcohol I use but sparingly, and have not been impressed with its utility in any cases except those that were previously much addicted to drink. Instead, I use strychnine in doses of from one sixtieth to one twentieth of a grain. A very eligible preparation is the elixir of bismuth, pepsin, and strychnine. Quinine I frequently employ in decided doses at the onset of the disease and in tonic doses throughout its course. To assist digestion I use a combination of pepsin and hydrochloric acid. For insomnia and restlessness I have found Dover's powders in six to eight-grain doses to act admirably. For sleeplessness, chloralamid in thirty to forty-grain doses has proved beneficial. For the severe headaches of the first week I feel assured that antipyrine combined with caffeine has proved of advantage. As a routine practice, during the first ten days I give fifteen to twenty grains of antipyrine in divided doses in the evening. It produces free perspiration, quiets delirium, and promotes a good night's rest. If thorough irrigation of the colon be employed at an early period, diarrhœa will not be a troublesome symptom. If excessive, it may be controlled by Dover's powders and bismuth. For other symptoms, such as epistaxis, meteorism, intestinal hæmorrhage, and the various complications that are concomitants or sequels of the disease, a proper consideration of the general principles of medicine will guide one to as successful an issue as may be hoped.

In conclusion, I will state it as my honest conviction that in the treatment of typhoid fever an early and thorough irrigation of the colon, a proper dietary, and a copious internal and external use of water are more to be relied upon than the employment of drugs.

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A CASE OF COMPLICATIONS.

By H. ELLIOTT BATES, M. D.,
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C. F. G. applied for treatment for a gonorrhœa of four days' duration, the discharge being abundant, purulent, blood-stained, and swarming with gonococci. An alkaline mixture was prescribed, a suspensory bandage adjusted, the patient directed to keep off his feet as much as possible and observe ordinary precautions as to diet and drink, and twenty grains of sodium bromide, with a suppository of opium and aconite, were prescribed to diminish the pronounced chordee. All went well for ten days, when I was sent for to call at his boarding place. The patient had taken a long walk into the country, and, being rather heated, lay down upon the ground for some time. Upon his return to his boarding place he had a violent chill, followed by intense pain, vesical tenesmus, incessant desire to urinate, nausea, and vomiting. Temperature, 104° 5' F.; pulse, 108. Urination was exceedingly painful; the few drops expelled at each attempt consisted of blood and pus. Half a grain of sulphate of morphine hypodermically, an infusion of flaxseed and *Triticum repens* in an alkaline mixture, suppositories of opium, belladonna, and aconite, elevation of the pelvis, and warm poultices applied over the bladder, were ordered. The next morning saw the symptoms of cystitis very much more pronounced. Temperature, 105° F.; pulse, 120, with mild delirium and a scanty purulent bloody discharge. Sulphate of quinine, Dover's powder, and cold sponging reduced the temperature to 102°; the tenesmus diminished. The next morning pain was complained of in the left testicle, and examination revealed a promising epididymitis. Hot poultices of tobacco and hops, suspension, and an anodyne suppository relieved the pain considerably. The temperature remained at 101°. Nourishment, before rejected, was retained. The bowels had been kept open by enemata. The prepuce was long and tight, and, although cautioned against leaving this retracted for any length of time, the patient had neglected it; consequently the condition of paraphimosis was added to the others; the swelling was the size of a closed fist and solidly edematous. Multiple puncture, hot applications, and pressure rapidly reduced the swelling to one third its size, and attention was called to a throbbing pain in the perineum, increase of temperature, pulse, and restlessness. Rectal examination revealed a hot and swollen prostate, which was about to suppurate. Cold to the perinæum, cold rectal injections, and free saline catharsis prevented further trouble from this source. The cystitis began to decline, the epididymis returned to its normal size after inunction with the oleate of mercury, and the patient, after a tedious convalescence, was able to walk to the office, where examination by the sound revealed the existence of two strictures of large caliber—one in the anterior, the other in the membranous urethra. As physical examination of the lungs revealed a few crackles at the left apex, the patient was directed to leave the city for a time, to

have the strictures dilated with the sound, but on no account to submit to a cutting operation. He returned to the city some months later, and said that the physician to whom he applied for treatment "cut the strictures," and the operation was followed by a prompt return of the epididymitis and paraphimosis. He was ordered to discontinue all treatment for a time, and then to have the strictures dilated, as examination showed that they had contracted even beyond the degree at first present. Some time after, he left the city for his home, saying that he felt perfectly well and had no trouble of any kind.

The case, while presenting nothing new, is remarkable for the recovery from so many conditions, any one of which is often treated as a serious condition. It also goes to prove the superiority of the dilatation of recent soft strictures with the sound over the cutting operation, and also that, even after all precautions have been taken, a gonorrhœa may develop into a far more serious condition as the result of any indiscretion. In this case no injections were used, and it is the writer's practice never to employ them in any case until the acute stage has passed and the discharge has become thin and non-purulent. Even then the passage of the sound will often stop the discharge sooner than an injection. The writer has yet to see a stricture result from such treatment in a single case of gonorrhœa, and believes that, in the majority of cases, to the use of an irritating injection, and not to the gonorrhœa itself, may be ascribed the formation of urethral stricture.

18 GARDEN STREET, July 15, 1893.

The Diagnosis of Cholera.—Professor Robert Koch has published in the *Zeitschrift für Hygiene*, Bd. xiv, Heft 2, a communication on the diagnosis of cholera. He refers to the fact that the cholera vibrio is invariably present in cases of Asiatic cholera [a fact that Cunningham and other Indian observers still deny], and says it is not found under other conditions; so it is important that its presence should be easily and rapidly demonstrable. Where means have to be devised to prevent the spread of the disease, and an early diagnosis is essential, some more rapid method is required than that of plate cultures, that is most useful in cases in which the vibrios are present in large numbers and several days are available for the process of development.

Koch found that a rapid microscopic examination of the materials forwarded to him from various parts of Germany enabled him to telegraph, almost immediately in about half the cases examined, whether the patient from whom the dejecta were obtained was affected with cholera or not. A microscopic examination of the mucous threads and flakes shows the cholera vibrios arranged in groups in which the single vibrios run parallel like a shoal of small fish following one another in a stream. This appearance he considers so characteristic of the cholera spirillum that when it is present he does not hesitate to make the diagnosis. Dunham, of New York, suggested a one-per-cent. peptone solution with one half per cent. of sodium chloride as a medium in which the organism would grow, reducing the nitrates to nitrites and also forming indol in its growth, so that on the addition of hydrochloric or sulphuric acid the "red reaction" was readily obtained. Dunham also found that the cholera vibrio grew in this mixture at an enormously greater rate than the other organisms found in the intestinal tract, and, on account of the affinity of the vibrio for oxygen, an almost pure culture may be obtained from the surface of the peptone medium. Koch finds that a one-per-cent. is preferable to a one-half-per-cent. solution of salt; and with this method, Hueppe's method of intraperitoneal injection, and gelatin and agar plate methods he was able to make a rapid and accurate diagnosis in all the cases submitted to him. It requires six hours to obtain the red reaction, and from eight to ten hours for colonies to be recognizable on the plates.

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WHITEHEAD'S OPERATION FOR HÆMORRHOIDS.

IN the August number of the *Medical Chronicle* there is an abstract of an interesting and important paper by Professor James Thompson, of the University of Texas, in which the author deals with Whitehead's operation from an anatomical point of view. Concerning the "pile-bearing area," which is completely excised in the operation, he says that, either on the cadaver or on the living subject, one can easily separate the mucous membrane of the lower portion of the rectum from its supporting structures as high as the upper border of the internal sphincter; and this procedure is accompanied by no hæmorrhage, provided the mucous membrane only is lifted from its bed. Around the anal margin the junction of skin and mucous membrane is carefully divided, and a few snips of the scissors soon open a cellular interval between the two sphincter muscles (internal and external) and the mucous membrane. This interval of loose cellular tissue extends above as high as the upper border of the internal sphincter, where it blends with the submucous coat of the rectum, which, being dense, firmly binds the mucous membrane to the circular muscular coat of the gut. At this level a vertical section shows the following relation of structures: The horizontal muscular coat of the bowel ceases abruptly, and is lined on its outer side by a prolongation of the pelvic fascia, which is continuous with that lining the upper surface of the levator ani. The circular muscular coat of the bowel changes abruptly into a thick bundle of fibers called the internal sphincter. This muscle is very strong, and is composed of involuntary fibers. Above and externally it blends with the upper fibers of the levator ani and a prolongation of the pelvic fascia, while below it is overlapped by the upper border of the external sphincter. Above and internally the muscle is firmly attached to the mucous membrane by the submucous coat, which is dense and unyielding, while below the loose cellular tissue above mentioned intervenes between it and the mucous membrane. The internal sphincter is easily brought into view by a clear dissection, and is "seen in all its glory" in a well-conducted Whitehead's operation. The external sphincter is a thin band of voluntary muscular fibers which surrounds the anal margin. It is seen but poorly in the dissecting room, and rarely comes into view during properly conducted operative procedures. Its outer surface receives the insertion of the levator ani and forms the inner boundary of the ischio-rectal fossa; its inner surface above is applied to the outer side of the internal sphincter, while below it forms the outer boundary of the lower part of the connective-tissue space before mentioned. This space, to which Professor Thompson

gives the name "peri-anal," has the following relations: It is about an inch long. Internally it is bounded by the mucous membrane, externally by the two sphincter muscles; above it is closed by the firm cohesion of internal sphincter submucous coat and mucous membrane, below by the union of skin and mucous membrane at the anal margin.

The blood-vessels of the rectum have been specially studied by the author. There is, he says, a particularly complete anastomosis between the portal and systemic system of veins which carry away the blood from the lower end of the rectum—so complete that an injection fills both the pudic and the internal iliac veins. The superior hæmorrhoidal vein carries away the whole of the venous blood from the mucous membrane of the rectum as low down as the anal margin. The vessels form a fine network completely surrounding the rectum; they are arranged in three distinct masses of vertical vessels with cross branches. These masses are situated respectively one on each postero-lateral aspect, and one on the anterior wall of the rectum; and it is in these situations that the anastomosis with the systemic veins is found. That on each postero-lateral aspect unites the superior and inferior hæmorrhoidal trunks. That on the anterior wall unites the superior hæmorrhoidal with the middle hæmorrhoidal and inferior vesical. All these anastomosing trunks pass across the "peri-anal space," and pierce the sphincter muscles to reach the systemic veins. The arteries practically follow the same course as the veins. Above the upper margin of the internal sphincter they lie outside the muscular coats of the gut, and pierce it at varying levels, until, becoming submucous, they course as vertical trunks to the anal margin.

The superior hæmorrhoidal artery passes on each postero-lateral aspect in the above-mentioned clusters of vessels, and, at the anal margin, blends by fine anastomoses with radicles from the inferior hæmorrhoidal artery. The arteries running in the anterior cluster of vessels are derived mainly from the superior hæmorrhoidal, but passing through the upper margins of the internal sphincter are one or two trunks anastomosing with the middle hæmorrhoidal and the inferior vesical vessels. In a dissection the arrangement of the veins in the "pile area" was shown. They were distended with venous blood, and showed very clearly the three clusters or columns on the postero-lateral and anterior walls. The venous distention extended from the anal margin to the upper border of the internal sphincter, where it ceased abruptly. The internal sphincter had been rolled up and one of the anastomosing trunks could be seen piercing it.

In a diagram shown, three large pile masses were seen having postero-lateral and anterior positions respectively. The anterior mass, which is usually of about half the size of the others, corresponds, the author says, to the anterior radicles of the superior hæmorrhoidal vessels and their anastomoses with the middle hæmorrhoidal and inferior vesical. The two postero-lateral masses correspond to the lateral trunks of the superior hæmorrhoidal, and their anastomoses with the inferior hæmorrhoidal. This disposition of parts is almost invariable,

and has been present in all cases that have come under his observation. It may not be clearly seen before complete dilatation of the sphincter; but after dilatation, the prolapse of the pile area will invariably demonstrate this peculiarity. A proper knowledge of this fact is necessary, for in these masses lie the vessels which have to be secured in the later stages of Whitehead's operation.

The anastomosis is complete, the veins have no valves, and, under ordinary circumstances, the greater part of the venous blood passes up the superior hæmorrhoidal vein to the portal system and thence through the liver. If from some cause this natural outlet is obstructed, the blood must find some other channel, which it does by its communications with the vesical and the middle and inferior hæmorrhoidal vessels. These outlets are inadequate to establish a free flow, and, as the superior hæmorrhoidal arteries are still carrying fresh blood into this area, an undue distention must result. Above the margin of the internal sphincter these veins are firmly supported by the dense submucous coat and firmly investing circular muscle, which they soon pierce. Below this point they lie in a comparatively loose cellular layer, which gives them practically no support. In consequence, undue distention results, entailing in its course chronic phlebitis, thrombosis, etc.; in fact, all the phenomena which may accompany varicosities. Of course the existence of this loose cellular space is only a predisposing cause. There is probably some other factor at work in the production of true hæmorrhoids besides mere venous distention. The importance of this loose connective tissue in connection with Whitehead's operation can not be overestimated. It enables the rectum to be safely separated from the surrounding tissues with but trifling hæmorrhage and absolutely no damage to the sphincter muscles.

Professor Thompson then describes Whitehead's operation, and says that in most cases it might be advisable to employ a method, suggested to him by Dr. Sampson, which he has found has a practical bearing on the simplicity and bloodlessness of the operation. After the tube of mucous membrane has been separated from the soft parts, a loop of catgut is thrown around the vessels which pass into the bases of the three main pile masses. It is best passed in the following manner: A needle on a handle is threaded with a doubled loop of catgut; by passing the needle inside the tube, the pile mass is transfixed at its center, the point of the needle projecting into the deep part of the wound. The free folded end of the loop is seized and the needle withdrawn, carrying with it the two free strands. The pile mass is again transfixed a little to one side of the vessels entering it, and one of the free strands of catgut is withdrawn from the eye of the needle and passed under the loop. The needle is now withdrawn, carrying with it the other strand of catgut. The pile mass is again transfixed on the other side of the vessels, the catgut is unthreaded, and the two strands firmly tied. In this way a Staffordshire knot is made, and the two strands emerging from the wound give the operator full control of the mucous membrane after the piles have been snipped away. Sutures are applied, as in Whitehead's method, catgut being employed in preference to silk.

Stress is laid on the necessity of opening the "peri-anal space" in the early stages of the operation. Failure to do this will almost of necessity entail more or less injury to the sphincter muscles, causing at some later date incontinence of fæces. But the author maintains that if the operation is conducted on the lines laid down, and the integrity of the skin is maintained, stricture and incontinence of fæces will never follow the operation. Hæmorrhage, he says, is a mere detail; it is controlled with ease when the operation is conducted by Mr. Whitehead's method, and when the ligature he describes is used the cut surface is absolutely dry.

We have given the substance of Professor Thompson's paper largely in his own words. It is illustrated with very instructive diagrams, and we commend it to our readers.

THE ECONOMY OF SANITATION.

UNDER the heading of *The Pied Piper of Hamelin*, A Sanitary Allegory, the *London Sanitary Record* indulges its readers in a comparison between the subject of Browning's delightful poem and those municipal governments that are niggardly in dealing with sanitary questions. The story should be better known than it is. It was about five hundred years ago, according to Browning, that a pest of rats infested the town of Hamelin in Brunswick. The mayor and aldermen were at their wits' end to get rid of the rodents, when the "pied Piper" came along and engaged to free the town for the sum of a thousand guilders. As the story goes, he played upon his pipe so cunningly and alluringly that all the rats, save one, followed him to the river Weser, and thus ended the plague of the rats. Great joy was felt throughout the city, and naturally the piper expected a prompt payment of his well-earned guilders. But the mayor and corporation grew stingy; "their troubles were over, they thought, and they would be troubled no more; but to get rid of the pestilent fellow, they offered him fifty. Then comes the tragedy of the story. They had treated their deliverer shabbily; they had put him in a passion, and they found him pipe to another fashion. Again he piped, so sweetly and persuasively, that all the children in the town came flocking out, and ran merrily after the wonderful music with shouting and laughter; and they followed their leader to the side of a mountain, which opened and swallowed them all up, and they were never heard of more—in Hamelin; and the parents in that ill-fated city were left to mourn.

"But it isn't true? We are not so sure of that. It is certainly in print; and if it weren't true, how could a grave poet like Robert Browning have taken the trouble to write out the story in charming verse? For our part we believe it to be perfectly true—if not in the letter, certainly in the spirit. When Browning wrote it, do you not think he had in view those principalities that grudge the expense of paying to get rid of nuisances? There are plenty among ourselves who still act the part of the mayor and corporation of Hamelin. Clearly the meaning of the poem is that if you are mean enough to grudge the necessary expenditure for ridding your town of destructive pests,

then you will have to pay for your sordid economy in the loss of your dearest. *You will see your children pass away before your eyes, and you will be utterly unable to stop them or to recall them. You will have to pay the piper* somehow; if not in money, then in some far more costly and tragical fashion. Bacilli are more troublesome and more destructive than even rats, because they destroy the most valuable of all property, and they can not easily be got rid of without spending money. Disease is the costliest of all conditions for a town, while the expenditure on sanitation is the wisest economy."

The poet Browning can hardly be held responsible for the lesson drawn by the editor of the *Record*, for the instruction of parsimonious health boards, but we find the parable so apt and pertinent that we have ourselves ventured to italicize the sentences that point out the almost inevitable loss of the lives of infants. It is the family circle that is rent at its weakest, yet its dearest, point. Thus it is that the innocent citizen "pays the piper" when economy in public-health matters overrules other considerations.

CHLOROMA IN ITS RELATIONS TO LEUCÆMIA.

DR. GEORGE DOCK reports in the *American Journal of the Medical Sciences* for August a new case, the seventeenth on record, of this rare disease. The title of his paper is Chloroma and its Relations to Leucæmia. The salient feature of this disease is the green color of the morbid growths found in various structures, which color has given rise to the names chloroma, green cancer, and cancer vert. In Dr. Dock's case the prevailing color may be described as pea-green. In some situations, however, the hue was a pale sage-green, in others darker, and in others there were pink, red, or brown stains. There were small growths in the liver and kidneys that were almost white, but in the pancreas and in the thymus the color was a pale green. The color gradually faded from the specimens that were removed and preserved in solutions. The pigment producing the green color is not yet known, but it is dissimilar to the coloring matters of the bile and the blood.

In all cases some part of the head has been found to be the seat of the morbid growth. The periosteum of the vertebrae and of the ribs adjoining is affected. The predilection of the green substance for the periosteum, especially that of the cranium, has been repeatedly remarked, and many observers incline to regard the periosteum of the skull as the starting point of the disease.

The disease is most frequent in early life. Its course is a short one. Twelve cases showed an average duration of five months. The patient shows marked anæmia without known cause, emaciation, loss of muscular power, rapid pulse, and dyspnoea. Among the other symptoms have been reported epistaxis, various hemorrhages, disturbances of vision, strabismus, exophthalmia, tinnitus, and deafness. Tumors are found under the temporal muscles, or on the cranium in other parts, or on other bones. Before the recognition of these tumors, the diagnosis will be doubtful, but after the appearance of tumors in the orbit and under the temporals, the nature of the case becomes

plain almost to certainty. The blood should be examined to determine if the leucocytes are increased or altered, and, that not being detected, an examination should be made from time to time in order to ascertain the possible occurrence of leucæmia, which may come on only a short time before death. The liver, spleen, lymphatic glands, and bones should be examined as to their contour, size, and tenderness. The new growths may be classed as sarcomatous, in that they contain connective-tissue formations with an excessive development of the cellular elements.

The fact that three cases have been reported from Prague, an equal number from Glasgow, and two from Paris is a point that may deserve attention, although without appreciable significance at the present time.

THE PAN-AMERICAN MEDICAL CONGRESS.

We would urge upon those of our readers who can in any way arrange their engagements so as to allow of their visiting Washington next week that they attend the Pan-American Medical Congress to be held there at that time. The postponement of the International Medical Congress that was to have been held in Rome this month, at such an interval after the Pan-American as to admit of attendance upon both, may operate to discourage a few from going to Washington, but it ought not to have that effect—indeed, as the *British Medical Journal* suggests, the Pan-American Medical Congress may well be taken as a substitute for the International.

The programmes that we have published from time to time give ample evidence of the importance of the topics that will come up for discussion and of the character of the men who are to deal with them. Indeed, we do not recall similar announcements that have been of greater promise. And this is not true merely of certain sections; it may be taken as applying to them in general. The proportion of theoretical to practical papers is such as to satisfy the most discriminating in the medical profession, also that of the readers from the various countries that are to take part. In short, all the indications are that the congress will be an event worthy of the medical profession of the hemisphere.

MINOR PARAGRAPHS.

THE EUCALYPTUS AND THE MOSQUITO.

A CORRESPONDENT of *Insect Life*, who is the owner of one of the largest and oldest groves of *Eucalyptus globulus* in his part of California, says that for fifteen years he has had opportunities to observe those trees as repellants of insects. Over thirty years ago his attention was first called to the subject by a physician who had resided in Australia for some years. That physician assured him that the mosquito, so troublesome to Californians, was unknown in the Australian eucalyptus forests and swamps, but added there's a "spotted mosquito" nearly as bad there in some places. He, not being an entomologist, was unable to tell whether the "spotted mosquito" was a species of the genus *Culex*, or of some allied genus. The physician was evidently a good, close observer, and the writer considered it

worth his while to take the hint. He adds: "I determined to test the anti-mosquito qualities of the eucalyptus, so when I began to improve my house here nineteen years ago, one of the first things I did was to get a lot of eucalyptus seed from Australia and plant out a grove of the trees. The tallest of them are now over one hundred and forty feet tall, and can be seen for twenty miles around. My house stands in the midst of these trees. My irrigating ditch, a dozen feet wide, of sluggish current, runs through the grove beside the house. There has never a single mosquito larva been seen in this ditch from where it enters the first shade of these trees to where it emerges from them two hundred yards away; while above and below mosquito larvæ are plentiful—not immediately below, but some hundreds of yards away, where the water stands in pools and becomes stagnant among a growth of black walnuts and cotton-woods. My live stock pasture in this timber, going into the walnuts and back again under the eucalyptus shade at pleasure. Frequently when the cows come up at night they bring a swarm of mosquitoes; occasionally some of them get into the house, but cause us so little annoyance that we scarcely notice them. Before this ditch reaches the eucalypti it runs through a jungle of 'fence bamboo,' where the mosquitoes are so bad that we avoid working there except on the windiest days. And, though the ditch has more currents there, the larvæ of mosquitoes are plentiful in the water till it reaches the eucalyptus trees, below which point none are found, till it has become stagnant away below them."

THE TÆNIA TUBÆ.

DR. F. BYRON ROBINSON, of Chicago, gives a description of a band in relation with the peritonæum covering the Falloppian tube not heretofore noticed in the works on anatomy. He describes the band as a thickening of the upper border of the perisalpinx or peritonæum covering the upper border of the tube. He names it the *tænia tubæ*. The colon of man has three bands running from the cæcum to the rectum. These bands are shorter than the colon and hence sacculate the colon and change its direction. This *tænia tubæ* is similar. It lies both in the peritonæum and on the musculature of the tube. He has noticed this tubal band quite a number of times in examining large numbers of tubes. It is significant as it aids in sacculating the tube. The sacculating of the tube is detrimental to the facility of transmitting ova, as the shortening of the tube causes kinks, angles, and convolutions in the tubal lumen which will retard the passage of an ovum through the tube to the uterus. These severe sacculations also give occasion to ectopic gestation by allowing the ovum to slip into portions of the tube which are not in the main stream of menstrual fluid, induce supersecretion of the tubal mucous membrane, by cilia flapping toward the uterus, and tubal peristalsis. The women possessing this band (*tænia tubæ*) have usually premenstrual pain or tubal colic on account of the difficulty of forcing fluids through a convoluted tube. So far as has been observed, such women either are sterile or have few children. This band is no doubt a relic of embryonic life or a relic of the Wolffian body. Such tubes have a slight congenital appearance. They are short, small, and spiral. The best way to see the band well is to put in pure alcohol some decidedly spiral, convoluted, or contorted tubes. After the tubes have been in the alcohol some time, the band (*tænia tubæ*) shortens much more than the tubes, and the band becomes plain and thick. Under a powerful lens the band appears to be composed chiefly of connective tissue, though no microscopical examination has been carried out. This band is often very distinct in certain tubes,

and it is easy of observation, for generally the Falloppian tube is entirely loose in the broad ligament. The peritonæum does not even dip down into the tubal kinks, whereas in the specimens with the *tænia tubæ* the tube is fixed in relation with the band.

THE NEW YORK PHYSICIANS' MUTUAL AID ASSOCIATION.

WE take great pleasure in being able to announce that the association has just given notice of a prepaid assessment to all its members in good standing. The membership is now over 1,200 and steadily increasing.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 22, 1893:

DISEASES.	Week ending Aug. 22.		Week ending Aug. 23.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	30	4	37	8
Scarlet fever.....	34	4	34	2
Cerebro-spinal meningitis....	3	0	2	2
Measles.....	102	7	66	6
Diphtheria.....	104	29	98	27
Small-pox.....	1	1	2	0

The Medical Corps of the Army.—An army medical board will be in session at Washington City, D. C., during October, 1893, for the examination of candidates for appointment to the medical corps of the United States Army, to fill existing vacancies. Persons desiring to present themselves for examination by the board will make application to the Secretary of War, before September 15, 1893, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between twenty-two and twenty-eight years of age and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the board. Further information regarding the examinations may be obtained by addressing the Surgeon General, U. S. Army, Washington, D. C.

The medical corps of the army consists of a surgeon general with the rank of brigadier general, six assistant surgeons general with the rank of colonel, ten deputy surgeons general with the rank of lieutenant colonel, fifty surgeons with the rank of major, and one hundred and twenty-five assistant surgeons with the rank of first lieutenant, mounted, for the first five years and the rank of captain, mounted, thereafter until promoted to major. Promotion through the intermediate grades of rank from that of captain to that of colonel is by seniority, but there is an examination for the rank of captain and another for that of major, to ascertain the fitness of the officer for promotion. Advancement to lieutenant colonel and colonel takes place without further examination. The surgeon general is selected by the President from among the members of the corps. All vacancies are filled by appointment to the junior grade.

To each rank is attached a fixed annual salary, which is received in monthly payments, and this is increased by ten per cent. for each period of five years' service until a maximum of forty per cent. is reached. An assistant surgeon with the rank of first lieutenant, mounted, receives \$1,600 per annum, or \$133.33 monthly. At the end of five years he is promoted to captain and receives \$2,000 a year, which, with the increase of ten per cent. for five years' service, is \$2,200, or \$183.33 per month. After ten years' service he receives \$2,400, after fifteen years

\$2,600, and if he remains a captain after twenty years, \$2,800 per year. The pay attached to the rank of major is \$2,600 a year, which, with ten per cent. added for each five years' service, becomes \$3,250 after fifteen years and \$3,500 after twenty years. The monthly pay of lieutenant colonel, colonel, and brigadier general is \$333.33, \$375, and \$458.33 respectively. Officers in addition to their pay proper are furnished with a liberal allowance of quarters according to rank, either in kind, or, where no suitable Government building is available, by commutation. When traveling on duty an officer receives four cents per mile and reimbursement of money actually expended for railroad or other fares. On change of station he is entitled to transportation for professional books and papers and a reasonable amount of baggage at Government expense. Mounted officers, including all officers of the medical corps, are provided with forage, stabling, and transportation for horses owned and actually kept by them, not exceeding two for all ranks below a brigadier. Groceries and other articles may be purchased from the commissary and fuel from the Quartermaster's Department at about wholesale cost price. Books and instruments are supplied in abundance for the use of medical officers in the performance of their duties.

By a recent order the Secretary of War has authorized the establishment of an Army Medical School in the city of Washington for the purpose of instructing approved candidates for admission to the medical corps of the army in their duties as medical officers.

The course of instruction will be for four months, and will be given annually at the Army Medical Museum, in Washington City, commencing on the 1st day of November.

Four professors will be selected from among the senior medical officers of the army stationed in or near the city of Washington, and as many associate professors as may be required to give practical laboratory instruction in the methods of sanitary analyses, microscopical technique, clinical microscopy, bacteriology, urine analysis, etc.

The faculty of the Army Medical School will consist of—

1. A *president of the faculty*, who shall be responsible for the discipline of the school, and who will deliver a course of lectures upon the duties of medical officers in war and peace (including property responsibility, examination of recruits, certificates of disability, reports, rights and privileges, customs of service, etc.).

2. A *professor of military surgery* (including the care and transportation of wounded).

3. A *professor of military hygiene* (including practical instruction in the examination of air, water, food, and clothing from a sanitary point of view).

4. A *professor of clinical and sanitary microscopy* (including bacteriology and urology).

A medical officer after completing the course of instruction at the Army Medical School will be assigned for some months as junior at a large military post in order that he may become acquainted with army regulations, the making of official reports, and other matters necessarily new to him, before he is thrown upon his own responsibility. His stations after that are likely to alternate between the frontier and more desirable points, a tour of duty being usually four years at one place. Leave of absence on full pay is allowed at the rate of one month per year, and this when not taken may accumulate to a maximum of four months, which at the end of four years is then available as one continuous leave. Beyond this an officer may still be absent with permission on half pay.

It is the intention of the surgeon general to recommend the assignment for duty, as attending surgeons in the principal medical centers of the United States, of medical officers who have not yet passed their examinations for promotion to a majority, and, so far as may be practicable, in the order of their seniority. These details will be made for one year only, in order that as many medical officers as possible may be enabled to avail themselves of the opportunities thus offered to become familiar with the practice of the leading physicians and surgeons in this country, and of attending medical lectures, meetings of medical societies, etc. At the end of this tour of duty medical officers will be required to make a detailed report to the surgeon general showing how much of their time has been occupied by their official duties and to

what extent they have availed themselves of the advantages offered for professional advancement.

Absence from duty on account of sickness involves no loss of pay. Medical officers are entitled to the privilege of retirement at any time for disability incurred in the line of duty or after forty years' service. On attaining the age of sixty-four they are placed upon the retired list by virtue of statutory provision. Retired officers receive three fourths the amount of their pay proper at the time of retirement.

Appointments to the medical corps of the army are made by the President after the applicant has passed a successful examination before the Army Medical Examining Board and has been recommended by the surgeon general. The board usually meets twice a year, about April and October, of which due notice is given by advertisement. Permission to appear before the board is obtained by letter to the Secretary of War, which must be in the handwriting of the applicant, giving the date and place of his birth and the place and State of which he is a permanent resident, and inclosing certificates based on personal acquaintance from at least two reputable persons as to his citizenship, character, and habits. The candidate must be a citizen of the United States, between twenty-two and twenty-eight years old, of sound health and good character, and a graduate of some regular medical college, in evidence of which his diploma will be submitted to the board. The scope of the examination will include the morals, habits, physical and mental qualifications of the candidate, and his general aptitude for service; and the board will report unfavorably should it have a reasonable doubt of his efficiency in any of these particulars.

The physical examination comes first in order, and must be thorough. Each candidate will in addition be required to certify "that he labors under no mental or physical infirmity or disability of any kind which can in any way interfere with the most efficient discharge of any duty which may be required." Errors of refraction, when not excessive and not accompanied by ocular disease, and when correctible by appropriate glasses, are not causes for rejection.

The mental examinations are conducted by both written and oral questions, to which written and oral answers are required upon—

- I. Elementary branches of common-school education, including English grammar, arithmetic, the history and geography of the United States, natural philosophy, the principles of Latin grammar, and upon general literature and ancient and modern history. Candidates professing special knowledge of the higher mathematics, ancient or modern languages, drawing, analytical chemistry, or other branches of natural science, will be examined in those matters as accomplishments, and will receive due credit therefor according to their proficiency.

- II. Professional branches, including anatomy, physiology, chemistry, hygiene, pathology and bacteriology, therapeutics and materia medica, surgery, practice of medicine, obstetrics, and the diseases of women and children.

Examinations at the bedside will also be conducted in clinical medicine and surgery, and operations and demonstrations upon the cadaver.

Hospital training and practical experience in the practice of medicine, surgery, and obstetrics are of great importance to candidates seeking admission to the medical corps of the army, and they will be fully appreciated and duly credited to those who have had such advantages.

The board has discretion to deviate in such manner as it deems best from this general plan of examination when necessary for the interests of the service.

To save unnecessary expense to candidates, those who desire it may have a preliminary physical examination and a mental examination in the "elementary branches of a common-school education" by a medical officer of the army stationed most conveniently for this purpose, who will act under instructions from the medical examining board.

The merits of the candidates in each of the several branches, and also their relative merit as evinced by the results obtained from the entire examination, will be reported by the board, and, in accordance with this report, approved candidates will be appointed to existing vacancies, or to such as may occur within two years thereafter. An applicant failing in one examination may be allowed a second after one

year, but not a third. No concession will be made for the expenses of persons undergoing examination, but those who receive appointments will be entitled to traveling allowances in obeying the first order assigning them to duty.

There are at present six vacancies in the corps to be filled.

To illustrate the general character of written questions submitted to candidates under examination, a few examples from the records of an army medical examining board recently convened in the city of New York are hereto appended:

Arithmetic.—1. Find the interest on \$400.00 for 2 years, 5 months, and 25 days at 8 per cent. per annum. 2. Find the depth of a reservoir 12 feet square from which 336 cubic yards of earth has been removed. 3. How many grains are there in 184 milligrammes? 4. What is $\frac{1}{2}$ carried to four decimal places? 5. What is $3\frac{1}{2} \times 15\frac{1}{2} + \frac{2}{3\frac{1}{2}} \div \frac{2}{3}$? 6. The shadow of a church tower extends 57 yards; what is the height of the tower when the shadow of a 2-foot rule in a vertical position extends 2 feet 9 inches?

Geography.—1. Which of the United States are bounded in part by the Atlantic Ocean? 2. What are the principal mountain ranges in the western part of the United States? 3. What rivers of North America flow into the Pacific Ocean? 4. Bound the States of Michigan and New Hampshire. 5. Over what waters would a vessel pass in sailing from Washington to Sebastopol, by the shortest route? 6. When it is 12 o'clock noon, standard time, in New York city, what is the standard time in San Francisco? Describe the system of "time belts" in the United States.

History and Literature.—1. Which were the two first permanent English colonies in North America? When, where, and by whom were they established? 2. Name the thirteen original States of the Union in the order in which they were settled. 3. What were the principal causes that led to the Revolutionary War in this country? 4. What poems have especially distinguished the following poets: Virgil, Milton, Young, Gray, James Thomson, and Goethe? 5. Under what Roman emperor was the capital of the empire removed from Rome, and what city became the new capital? 6. Name the principal battles fought in the Persian invasion of Greece by Xerxes. 7. Name the kings and queens of England embraced in the line of Tudor.

Chemistry.—1. State the "law of multiple proportions." When was it discovered? 2. Give the symbols and atomic weights of the bivalent, non-metallic elements. 3. What are the physical and chemical properties of the element represented by the symbol Sb, and by what tests may it be recognized? 4. What do you understand by the following formula: $\text{Fe}_2\text{S}_3\text{O}_4 + 6\text{NH}_4\text{HO} = 3[(\text{NH}_4)_2\text{SO}_4] + \text{Fe}_2\text{HO}$? 5. What is the formula for ethyl ether, and how is it prepared? 6. What substance is represented by the formula $\text{C}_6\text{H}_{12}\text{O}_6$? Where is it found in nature, what are its physical characters, and by what chemical tests may it be recognized?

Physics.—1. What is weight? Is the weight of a body constant? If not, why does it vary? 2. What is osmosis? What conditions are necessary to osmotic action? Give an illustration from the human body. 3. How is dew formed? What circumstances influence its formation? What is meant by the dew point? 4. Upon what fundamental laws of light does the action of lenses depend? Why does a convex lens magnify? 5. What is the velocity of sound? Does it vary, and how? 6. What is the relation between the dynamo and the electric motor? What is the principle of the dynamo?

Anatomy.—1. Give the anatomy of the fourth ventricle, including the origin of nerves. 2. Give the anatomy of the coracoid process. 3. Make a diagrammatic sketch showing the relation of parts in a cross-section [through the middle third of the right arm, proximal surface. 4. Describe the internal pudic artery and its relations. 5. Give a short description of the minute structural anatomy of the kidney, with or without schematic diagram.

Physiology.—1. Tell what you know about the cerebral localization of the functions of motion and locate some of the so-called motor areas. 2. What are the functions of the thyroid gland and the consequences of its removal? 3. What is the composition of atmospheric air and of expired air? 4. Give a list and a short description of some of the

animal albuminoids. 5. What is urea? What is the normal quantity in proportion to body weight? How is it estimated?

Surgery.—1. Give in detail the preparatory and several following steps of a so-called aseptic surgical operation. 2. What is the nature and origin of pus? What is sepsis and also antiseptics? 3. Describe Chopart's amputation through the foot, with diagram. 4. Give the points of diagnostic differentiation in cases of lupus ulceration, syphilitic ulceration, and epitheliomatous ulceration. 5. Describe the different methods of procedure for the reduction of luxations of the head of the femur.

Hygiene.—1. What is the normal amount of CO_2 in the atmosphere, how much of this gas is considered admissible in inhabited apartments, and how is the amount determined? 2. What amount of cubic-air space per bed would you consider a suitable allowance in a hospital ward? 3. What substances in well or river water indicate, by their presence, contamination from excreta or other organic matter of animal origin? 4. How is the hardness of water estimated and to what is it due? 5. What are the constituent alimentary substances in milk, and how does cow's milk differ from human milk? 6. What vegetable products used as food contain the largest proportion of carbohydrates and what the largest proportion of proteids? 7. What parasites dangerous to man may be present in the flesh of animals used as food? 8. How would you disinfect the excreta of patients sick with cholera or typhoid fever?

Pathology and Bacteriology.—1. What are the different stages of exudative inflammation and what the products of such inflammation? 2. What are the causes of thrombosis, what the composition and varieties of thrombi, and what changes may they undergo? 3. What pathological changes are found in the spinal cord in posterior spinal sclerosis? 4. What changes occur in the liver as a result of chronic interstitial hepatitis? 5. What bacteria are commonly found attached to the diseased valves in mycotic endocarditis? 6. What are the morphological and biological characters of the bacillus of diphtheria, and what are the evidences of its etiological relation to this disease?

Therapeutics, Materia Medica, and Toxicology.—1. By what various agents may antipyresis be produced? Give an example of each class of antipyretics and state how it acts. 2. In a case of typical acute pleurisy state the indications for treatment in its several stages and how you would meet them. 3. What is salol? Give its physiological action and therapeutic uses. 4. Give the source and therapeutic uses of cocaine, the dose in each case, and its dangerous effects. 5. With what condition is poisoning from opium most likely to be confounded? How would you make a diagnosis and how treat such a case? 6. What are the poisonous effects of the lead salts? How is their presence detected? State briefly your plan of treatment.

Practice of Medicine.—1. Give an account of the etiology, symptoms, physical signs, and differential diagnosis of lobular pneumonia. 2. Give an account of the etiology, physical signs, and treatment of empyema. 3. Give an account of the etiology, symptoms, differential diagnosis, and treatment of dilatation of the stomach. 4. What are the causes and symptoms of intestinal obstruction and what is the treatment? 5. What are the causes and results of mitral stenosis and how would you recognize this condition? 6. Give the differential diagnosis between small-pox and measles.

Obstetrics and Diseases of Women and Children.—1. Describe briefly the usual mechanism of a breech presentation; what dangers are to be guarded against and what difficulties to be met? 2. Under what circumstances is premature delivery demanded and how would you perform it? 3. What symptoms would lead you to suspect the presence of a uterine fibroid? State how an exact diagnosis can be made in such cases. 4. What measures preventive or remedial would you use in a case of puerperal convulsions? 5. What early symptoms indicate probable onset of the chief eruptive fevers in children? In which does temperature range highest, which has the shortest period of incubation, of invasion, of eruption?

The Buffalo Academy of Medicine.—At the next meeting of the Surgical Section, on Tuesday, the 5th inst., Dr. Eugene Smith is to read a paper on Minor Surgical Operations, and Dr. Frank J. Thornbury is to read one on The Preparation of Suture Material and Dressings.

Mr. Ernest Hart.—The July number of the *Alienist and Neurologist* contains a biographical sketch of Mr. Hart, substantially as follows:

Mr. Hart was born in June, 1836, and educated at the City of London School, where he became captain and Lambert Jones scholar at a very early age. Subsequently he entered St. George's Hospital School of Medicine, where he attained first prize in every class.

At the age of twenty-eight he became ophthalmic surgeon to St. Mary's Hospital School, and held that post for ten years, publishing from time to time papers on ophthalmic subjects, and contributing to the *Moorfields Hospital Ophthalmic Reports* a paper On the Minute Anatomy of the Nerves and Iris, and the Ciliary Body, in which, for the first time, the ganglionic network of the nerves, which lies upon the iris, was described and figured. He introduced into ophthalmic practice medicated gelatin discs.

Mr. Hart projected a commission of inquiry into the London workhouse infirmaries and the treatment of the sick poor, and reported on the subject in conjunction with Mr. Anstie and Dr. Carr. In those days, as then appeared, no special arrangements were made for persons dangerously ill, but they were intrusted to the tender mercies of the pauper nurses, altogether incompetent, whose remuneration for their work was an extra allowance of beer. The result was that a meeting, called at Willis's Rooms, formed a deputation, headed by Mr. Hart, to the Government; the Duke of Westminster, the Archbishop of York, Mr. Maurice, Mr. Hughes, and Dr. Anstie joined a committee which met weekly at his house. A bill was drafted and subsequently Mr. Hardy's act was passed embodying their chief proposals and constituting the Metropolitan Asylums Board, which has charge of the hospitals for sick poor, where they may be properly tended and cared for. The duke and his friends instituted a public subscription for a testimonial to Mr. Hart, and some hundreds of pounds were speedily collected; but Mr. Hart expressed a wish that the matter be dropped.

Another good work which Mr. Hart successfully prosecuted was his exposure of the iniquities of baby farming and other kindred evils. As a result, the Infant Life Protection Act, which he assisted to draft, became law.

Mr. Hart has long been an active member, as well as chairman, of the Parliamentary Bills Committee of the British Medical Association, and in that capacity has done much valuable work. In 1864, when the Government introduced a bill to enable the Secretary of State for India to dispense with competitive examinations and to substitute for them a system of patronage in the Indian Medical Service, the association properly regarded the proposal as derogatory to the honor and interest of the profession, and Mr. Hart led the opposition to it. Mr. Pope Hennessey, M. P., who took strong ground upon the question, read in the House of Commons a memorandum with which Mr. Hart had furnished him, and the bill was defeated upon the third reading.

In the year 1866 Mr. Hart was appointed by the council of the British Medical Association to the editorship of the *British Medical Journal*, an office he still holds, along with the editorship of the *London Medical Record* and the *Sanitary Record*. When he took up the editorship of the *British Medical Journal* it was not a lucrative adjunct of the association; now its profits amount to £6,000 per annum, while the number of members of the association has increased from 2,000 to more than 13,000.

From that time forward Mr. Hart has led a busy life, not only in his editorial work but in promoting in many ways the welfare of the medical profession. Having, in 1867, been apprised that the Lords of the Admiralty proposed to establish a system of bounties to needy medical students in the schools—granting to those who would bind themselves for ten years' naval service a free bounty of £100 in their fourth year at school—he forthwith organized an opposition to the scheme, which was universally considered derogatory to the honor of the profession, and calculated to interfere with its independence; and the official minute and circular were withdrawn in consequence. Again, in 1874, Mr. Hart, as chairman of the Parliamentary Bills Committee of the British Medical Association, prepared a statement, which he submitted to the First Lord of the Admiralty, drawing attention to the medical service of the royal navy, and making proposals for the removal of certain grievances. It happened that the Admiralty had the subject under consideration at the time, and in the next year several concessions

which the committee had suggested as to rank, pay, and retirement were made.

We find that Mr. Hart has not been less energetic for the Army Medical Service, for which he has procured several concessions. About the year 1872 the War Office proposed to make changes much to the advantage of militia surgeons which the Parliamentary Bills Committee stoutly opposed, and the Army Warrant of 1873, chiefly owing to his instance, was so modified as to restore to the medical officers of the army certain privileges of which they had been deprived. At that time the Army Medical Department was unpopular with the profession, and Mr. Hart, as chairman of the committee, therefore presented various reports to the War Office, and was instrumental in drawing attention to the requirements of the service in the matter of pay, retirement, and relative rank. A complete scheme for the reorganization of the service was published in the *British Medical Journal* for January 1, 1879. Ultimately, early in the year 1880, a new Army Medical Warrant was issued, embodying the chief points recommended by the committee, and greatly improving the emoluments of army surgeons, and it had the effect of increasing the number of candidates for the Army Medical Service. Later in the same year Mr. Hart was concerned in the representation to the Government as to the grievances of the medical officers of the Indian Army Service, which was acknowledged to have been successful and valuable.

Following up this result, Mr. Hart at once set afoot inquiries as to the causes of the extreme unpopularity of the Naval Medical Service, and a scheme which he prepared for its amelioration—wherein, among other things, he proposed that the pay of naval candidates at Netley should be equalized with that of candidates of the army—was presented to the Lords of the Admiralty, who issued a new Medical Navy Warrant generally embodying its proposals. "The warrant," said the *British Medical Journal*, "is in a large measure the issue of our own efforts for the good of the service, and is based upon the memorandum of claims drawn up by Mr. Hart, and submitted by him at official request to the First Lord of the Admiralty, by whom it was referred to a Departmental Committee."

Mr. Hart, in 1876, was mainly concerned in organizing an association for establishing coffee taverns in London, which should be self-supporting, the object being to check intemperance. He likewise assisted in forming centers for cheap musical entertainments in poor districts, the Popular Ballad Committee being formed, and the Victoria Theater being formed into a coffee tavern and temperance music hall. Popular concerts are now given in various parts of London, and the Ballad Committee is engaged in training men and women in vocal and instrumental music. Again Mr. Hart sought to improve the condition of London by organizing the Smoke Abatement Movement, and it was chiefly due to him that the Smoke Abatement Exhibition was held in 1882, from which many practical benefits have followed. He is now chairman of the council of the Smoke Abatement Institute. He has also been greatly concerned in the good work of the National Health Society and of the Metropolitan Public Garden and Boulevard Association, of which he is vice-chairman. Of the International Health Exhibition of 1885 he was the projector, and an active member of the executive committee.

In building up the great organization of the British Medical Association Mr. Hart has had a large share, and by its means he has been enabled to do much good work, as has already been seen. From his demonstrations of the truths about vaccination, and his organization of the London Conference on Animal Vaccination, great public good has followed. He has also done good service by organizing a scheme of scientific sanitation of the milk supply of the Metropolis. He has held the office of president of the Harveian and Quekett Microscopical Societies.

In professional questions generally Mr. Hart has always taken the side of the "rank and file." He led the movement for restoring to the medical profession the "Lost School at Oxford," with its rich endowments. He did much to obtain direct representation of the profession in the General Medicine Council, and was nominated, but declined to serve, as a representative on that body. He has from the first warmly supported the claims of women to medical practice and has supplied the funds for two scholarships at the Medical School for Women.

In April, 1893, a meeting was held at Grosvenor House, by the permission of the Duke of Westminster, at which five hundred gentlemen assembled to take part in the presentation to Mrs. Ernest Hart of a portrait of her husband. The Duke of Westminster was to have presided, but, he being suddenly summoned to the House of Lords, his place was filled by Mr. (now Sir Spencer) Wells, then president of the Royal College of Surgeons. Among the speakers were Sir Henry Thompson, Sir F. Pollock, Sir T. W. Charley, Dr. Cameron, M. P., Dr. Farquharson, M. P., Dr. Quain, and others. The address was an epitome of Mr. Hart's life-labors. The portrait was painted by Mr. Frank Holl, R. A., and is admitted by all who have seen it to be an admirable work of art, faithfully conveying the dark, keen, intelligent, well-cut features of the subject, and his small, wiry frame.

In 1884 Mr. Hart began seriously to study the question of founding a society which should afford to medical men the means of providing for their families in the event of sickness and disablement in practice, as well as of death. The medical profession has several charitable societies to relieve the sufferings and alleviate the calamities of disastrous sickness or failure; but, although more than one effort had been made, it had before been found impossible to provide an annuity and sickness fund such as those which the friendly societies supply for the working classes. The society established many years before for this purpose had not met with any success and was quickly dissolved. After studying all the conditions, and obtaining preliminary replies to a circular which was extensively issued with a view of ascertaining a basis of vital statistics for the medical profession, Mr. Hart called a meeting of the profession at the annual gathering of the British Medical Association at Liverpool, and explained his proposed method of proceeding and the organization which he had planned. These proposals were unanimously accepted by the meeting, and the society was founded under his presidency, Sir T. Spencer Wells, Dr. W. M. Ord, and Dr. J. R. Upton acting with him as first trustees, and the executive and general committees being nominated. This society has since greatly prospered, so that at the present moment—three years and a half after its foundation—it has nine hundred members. It has accumulated reserve funds amounting to £20,000, and is paying £40 a week in sick pay to members temporarily or permanently disabled. The basis of success has been secured mainly by great economy in management and by relying fully upon the principle of mutual association without payments to directors, or payment of commissions to agents. The working expenses of the society do not amount to more than five per cent. of its premium income. This is the first society of the kind which has ever been successfully established among the professional classes.

Tramps and Infection.—In an editorial article with this title the *British Medical Journal* for August 19th says: "The interesting discussion at the Newcastle meeting on the spread of infectious diseases by tramps opened up a question which is of the gravest importance to the community. The efforts of sanitarians in regard to the suppression of infectious diseases are at the present day mainly directed into two channels: one the production of such a general improvement of the sanitary surroundings of the people as shall render them more able to resist disease, the other the prompt removal and isolation of the sick, so as to prevent infection of the healthy. Some of the younger and more hopeful among us may think to see the day when the first of these shall be sufficient, but certainly at the present time, and so long as the lives of the poor remain as they are, we can no more afford to allow the free dissemination of infection than a farmer can permit the use of matches in his rickyard.

"Everywhere this is being recognized. Notification is spreading over the land, isolation hospitals are arising on all sides, which, although often very imperfect, show at least that the principle is being widely accepted, by elected and directly responsible bodies, that individuals shall not be allowed to infect the community. As a consequence, respectable citizens are finding their liberties in many respects curtailed, workmen are debarred from their ordinary means of earning a livelihood, children are shut out from an education which is their right, and ratepayers have to support large hospitals, all for the sake of restraining the spread of disease, and yet the vagrant is allowed to roam over the country caring for none of these things, and carrying with him

his rags and his infections from town to town, without let or hindrance. We need, then, feel no surprise that people who have to submit to such restrictions, and who do submit to them with more or less willingness in the hope of thereby deriving some protection, object strongly to their efforts being antagonized by the wanderings of tramps and vagrants.

"The sturdy beggar and the homeless vagrant have troubled the law-abiding citizen far back into the times of early history; the tendency to vagrancy, the dislike to settled habits, the hatred of control being so ingrained in a certain proportion of the human race, that the genus tramp—with all its dirt and tendency to spread disease—has always been able to hold its own against the laws, often harsh and cruel, which have for ages been leveled against it; and we certainly must not allow any hope or expectation of an advancing civilization leading to the extinction of the race to stand in the way of such measures as may be found necessary to prevent the evils arising from its nomadic habits.

"Dr Ring pointed out how frequently epidemic diseases were carried into new districts by tramps, and how common lodging houses and casual wards became dispersion points for infection. Dr. Armstrong* also has shown the immense importance of vagrancy in the dissemination of small-pox: seventy-three per cent. of the urban districts in which small-pox had occurred, and from which he got returns, having sooner or later been infected by vagrants, many of them having had it introduced in the same way over and over again. The case, in fact, in regard to small-pox is so strong that perhaps the discussion drifted unduly in the direction of compulsory revaccination as a way out of the difficulty, for the probability is that a mode of dissemination proved in one disease operates in others, and that many a strange and unaccountable outbreak of diphtheria or scarlet fever dates back to the cup of water given by a villager to some passing tramp.

"Unfortunately, the remedies proposed all touch freely on that thorny question—the liberty of the subject. Compulsory detention, revaccination, and disinfection, with compulsory reporting of their movements, and even, as recommended by Dr. Ring, the registration of their comings-in and goings-out on a card carried for the purpose, form the staple of the suggestions which were made; but when one realizes that we have to deal with people who dislike jail chiefly because it brings them under the ken of the authorities, and to whom the 'ticket,' with its suspicious resemblance to a ticket of leave, would send a greater punishment than the penalty for not using it, we begin to see some of the difficulties with which the question is hedged around. Nor are these lessened by the fact that, although tramps form a class apart, separate, and distinct from the rest of the community, they are intimately mixed up in their haunts and their movements with the unemployed poor. However much it may be insisted on that the tramp requires severe measures, the only places where he can be caught to be dealt with at all are the casual wards and the common lodging houses, in both of which he is mixed up with a crowd of unfortunates, out-of-workers, and ne'er-do-wells, who by no means deserve the same severity; and although it may be true that an experienced officer can pick out the tramp at a glance—nay even, as was suggested, at a sniff—that is hardly the sort of evidence on which it would be right to condemn any one to exceptional treatment.

"We, like the Hindus, have our fairs and great gatherings, although with less religious aims, and ours, like theirs, doubtless act as disseminators of disease. Hop picking, harvesting, and strikes, all set up large movements of the poorest of our population, who become intermingled in our casual wards and lodging houses with detachments of that great army of sixty thousand vagrants which is said constantly to perambulate our country, and, efficacious as it might be from a sanitary point of view to treat all these people like ticket-of-leave men, we hardly think it probable that Parliament would be induced to take that view.

"In the mean time our authorities might certainly apply with greater vigor the powers which they have. Little control as we have over the tramp himself, we do already possess considerable authority over the keeper of the common lodging house. If the description of doss houses lately given in the *St. James's Gazette* are to be trusted, these dwellings are far indeed from the perfection which could be enforced by the law even as it now stands, and if it be objected that to make

* *Public Health*, July, 1893.

them clean and decent would render them too expensive for the tramp, we would answer—so much the better. The sooner the tramp can be driven to a reformed casual ward, where at least he can be washed and his rags be disinfected, the better for the country. It would probably well pay the nation to give him both bed and breakfast in return for being allowed to scrub him."

The Pan-American Medical Congress.—The following is published for the information of those of our readers who are delegates to and intend visiting Washington during the sessions of the congress: The Pennsylvania Railroad Company has fixed the rate at one fare and a third for the round trip on all of its lines. Purchasers of tickets at one full fare (\$6.50 from New York) will receive from the ticket agent a certificate which, when countersigned by the chairman of the Transportation Committee, will entitle them to a return ticket at one third fare. Trains leave the Pennsylvania Railroad depot in Jersey City, with ferryboat connections from the foot of Cortlandt and Desbrosses Streets, New York, and with annex boats (thirty minutes earlier) from Brooklyn, and from the Sound line of steamboats, on their arrival, as follows:

Leave New York	8.00 A. M.,	arrive in Washington	1.42 P. M.
" " "	8.30 A. M.,	" " "	3.10 P. M.
" " "	10.00 A. M.,	" " "	3.45 P. M.
" " "	11.00 A. M.,	" " "	4.30 P. M.
" " "	2.10 P. M.,	" " "	8.15 P. M.
" " "	3.20 P. M.,	" " "	8.25 P. M.
" " "	4.30 P. M.,	" " "	10.25 P. M.
" " "	5.00 P. M.,	" " "	10.55 P. M.
" " "	9.00 P. M.,	" " "	4.10 A. M.
" " "	12.15 A. M.,	" " "	7.40 A. M.

The 10.00 A. M. and the 3.20 P. M. trains are composed entirely of Pullman cars, which are attached to all trains, on which the fare is \$1.25 additional.

The Colorado Medical Library Association has issued the following circular:

"Certain members of the medical profession in Denver, realizing that the existence of a medical reference library for Colorado has become a necessity to the enlightened study and practice of medicine, have united and become incorporated under the title of the Colorado Medical Library Association.

"The annual subscription for membership has been placed at \$5.00, and the subscriptions so received will be expended in the purchase of medical literature of a character determined by the nominations of the individual subscribers. The works thus obtained will be placed on the shelves of the Denver Public Library, on the condition that the library will spend on medical literature at least as much money as is subscribed by the association. The power and usefulness of books are increased when they are brought together. To the choice collection of medical works already in possession of the public library, several hundred valuable volumes have recently been added, either as bequests, gifts, or to be held in trust for their present owners. The funds in the treasury of the Medico-legal Society have been devoted to the purchase of appropriate literature to be added to the library.

"The medical department of the library now contains over 800 bound volumes; fifty-five journals are regularly received through subscription, while some seventy-five additional journals are present in incomplete sets. At the present rate Colorado will shortly be in possession of a medical library which will compare favorably with the collections of the East. The present executive committee is as follows: Dr. J. T. Eskridge, president; Dr. Henry Sewall, secretary and treasurer, No. 23 Eighteenth Avenue; Dr. J. C. Dana, librarian.

The Naval Post-graduate School at Brooklyn.—The following-named officers have been appointed to have charge of the new school of instruction for surgeons at the Naval Laboratory at Brooklyn: Medical Director J. H. Clark, president; Medical Inspector C. H. White and Surgeons J. L. Neilson and M. F. Gates. The latter will serve as recorder. The school opened about August 1st, beginning with a class of two scholars, who had recently entered the naval service. The course of instruction will continue three months or longer. The following will be among the subjects of study: Chemistry, hygiene, micro-

copy, bacteriology, ventilation, life-saving, anthropology, and bedside work. The students will have opportunities to visit different naval hospitals and view practically the medical conditions of naval life, hospital establishments on shore and on shipboard, and the causes of diseases among sailors.

Change of Address.—Dr. Ward A. Holden, to No. 37 West Thirtieth Street.

The Death of Dr. George Henry, of Livingstonia, Africa, on July 5th, removed a valuable member of the Scottish pioneer band of missionaries belonging to the Free Kirk. He had a double qualification in medicine from the University of Aberdeen, but he was best known for his marvelous faculty in linguistics. He had command of Hebrew and Arabic quite early, and afterward acquired a good knowledge of Persian, Hindustani, Chinese, and other Oriental tongues. He wrote a grammar of Chinyanja, the dialect of the African tribe with which he passed his later years; he also translated *Pilgrim's Progress* and a hymn-book. He died of African fever.

The Death of Dr. Oliver H. Bartine, of Princeton, New Jersey, occurred on August 24th. He was seventy-eight years old. He was graduated in 1859 from the Philadelphia Medical College. He was mayor of Princeton at one time, and always prominent in public improvements. He died, after a short illness, of paralysis.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 20 to August 26, 1893:*

By direction of the Secretary of War, a board of medical officers—to consist of ALDEN, CHARLES H., Colonel and Assistant Surgeon General; FORWOOD, WILLIAM H., Lieutenant Colonel and Deputy Surgeon General; SMART, CHARLES, Major and Surgeon; REED, WALTER, Captain and Assistant Surgeon; and MERRILL, JAMES C., Captain and Assistant Surgeon—is constituted to meet at the Army Medical Museum Building, in this city, on the 11th day of September, 1893, for the examination of candidates for admission to the medical corps of the army. Par. 1, S. O. 193, Headquarters of the Army, A. G. O., Washington, August 23, 1893.

A board of officers—to consist of ALDEN, CHARLES H., Colonel and Assistant Surgeon General; FORWOOD, WILLIAM H., Lieutenant Colonel and Deputy Surgeon General; and CORSON, JOSEPH K., Major and Surgeon—is, by direction of the Secretary of War, appointed to meet at the Army Medical Museum Building, Washington, on Monday, September 4, 1893, for the examination of such officers as may be ordered before it to determine their fitness for promotion.

By direction of the Secretary of War, the following-named medical officers are detailed to represent the Medical Department of the Army at the Pan-American Medical Congress to be held in Washington, D. C., September 5 to 8, 1893: IRWIN, B. J. D., Colonel and Assistant Surgeon General; BACHE, DALLAS, Lieutenant Colonel and Deputy Surgeon General; HUNTINGTON, DAVID L., Major and Surgeon; and SMART, CHARLES, Major and Surgeon.

ALDEN, CHARLES H., Colonel and Assistant Surgeon General, on being relieved from duty as medical director, Department of Dakota, will proceed to this city and report to the Surgeon General, U. S. Army, for duty in his office, and as president of the Army Medical School, Washington, D. C.

POWELL, J. L., Captain and Assistant Surgeon, is hereby granted leave of absence for one month, with permission to apply for an extension of ten days.

WOLVERTON, WILLIAM D., Lieutenant Colonel and Deputy Surgeon General, is relieved from duty at Watervliet Arsenal, New York, and assigned to duty as medical director, Department of the Columbia, to relieve BYRNE, C. C., Lieutenant Colonel and Deputy Surgeon General.

BYRNE, C. C., Lieutenant Colonel and Deputy Surgeon General, on being relieved from duty as medical director, Department of the Columbia, will report for duty as medical director, Department of Dakota, to relieve ALDEN, CHARLES H., Colonel and Assistant Surgeon General. SHILLOCK, PAUL, Captain and Assistant Surgeon (in the field), is granted leave of absence for one month, to take effect about September 1,

1893, with permission to apply for an extension of fifteen days. The commanding officer, U. S. troops in the field near Fruitland, New Mexico, is authorized to employ a citizen physician in cases of necessity during the absence of Captain Paul Shillock, Assistant Surgeon.

By direction of the Secretary of War, the following-named officers will report in person to Colonel C. H. Alden, Assistant Surgeon General, president of the examining board appointed to meet at the Army Medical Museum Building, September 4, 1893, for examination for promotion: PRICE, CURTIS E., Captain and Assistant Surgeon; COMEGYS, E. T., Captain and Assistant Surgeon; REED, WALTER, Captain and Assistant Surgeon; and MERRILL, JAMES C., Captain and Assistant Surgeon.

CARTER, WILLIAM F., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect upon the return of Assistant Surgeon Glennan from leave.

BROWN, JUSTUS M., Major and Surgeon, is relieved from duty at Fort Meade, South Dakota, and assigned to duty at Fort Wayne, Michigan.

GIBSON, R. J., Captain and Assistant Surgeon, is granted leave of absence for one month.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending August 26, 1893:*

BLOODGOOD, D., Medical Director. Placed on retired list, August 20, 1893.

WINSLOW, GEORGE F., Surgeon. Detached from the Monterey and ordered to the Philadelphia.

HOEHLING, A. A., Medical Director. Appointed president of the board to examine applicants for admission to the Naval Academy.

SMITH, G. T., Passed Assistant Surgeon. Detached from the Baltimore and ordered to the Wabash.

KENNEDY, R. M., Passed Assistant Surgeon. Detached from the Wabash and ordered to the Baltimore.

STONE, L. H., Assistant Surgeon. Detached from the Naval Hospital, New York, and ordered to the Minnesota.

PAGE, J. E., Assistant Surgeon. Detached from the Minnesota and granted sick leave for three months.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the eight weeks ending August 5, 1893:*

FESSENDEN, C. S. D., Surgeon. To proceed to Mobile, Ala., for duty. June 16, 1893. To proceed to New Orleans, La., as Inspector. August 1, 1893.

MURRAY, R. D., Surgeon. Granted leave of absence for seven days. June 21, 1893.

VANSANT, JOHN, Surgeon. To proceed to Wilmington, N. C., for duty. June 16, 1893.

AUSTIN, H. W., Surgeon. To inspect Delaware Breakwater Quarantine Station. July 22, 1893.

GASSAWAY, J. M., Surgeon. To proceed to Detroit, Mich., and Chicago, Ill., as Inspector. July 12, 1893.

IRWIN, FAIRFAX, Surgeon. Detailed for duty in office of the United States Consul, London, England. July 2, 1893.

CARTER, H. R., Surgeon. To proceed to Brunswick, Ga., for temporary duty. June 28, 1893.

PECKHAM, C. T., Passed Assistant Surgeon. Granted leave of absence for six days. June 22, 1893.

BROOKS, S. D., Passed Assistant Surgeon. Granted leave of absence for three days. June 22, 1893.

CARRINGTON, P. M., Passed Assistant Surgeon. Detailed for duty in office of the United States Consul, Bremen, Germany. June 15, 1893.

KINTOUN, J. J., Passed Assistant Surgeon. To rejoin station, Washington, D. C. July 10, 1893. To inspect Camp Low, New Jersey. July 29, 1893.

GOODWIN, H. T., Passed Assistant Surgeon. Granted leave of absence for three days. June 12, 1893. To proceed to Louisville, Ky., for duty. July 12, 1893.

VAUGHAN, G. T., Passed Assistant Surgeon. To proceed to Chicago, Ill., for temporary duty. July 10, 1893.

GEDDINGS, H. D., Passed Assistant Surgeon. To proceed to Delaware Breakwater Quarantine for duty. June 30, 1893.

PERRY, J. C., Passed Assistant Surgeon. To proceed to Portland, Me., for temporary duty. July 8, 1893.

SIMPSON, W. G., Assistant Surgeon. Detailed for duty in office of the United States Consul, Glasgow, Scotland. July 7, 1893.

GARDNER, C. H., Assistant Surgeon. Granted leave of absence for fourteen days. July 19, 1893.

STRAYER, EDGAR, Assistant Surgeon. To proceed to Vineyard Haven, Mass., for temporary duty. July 8, 1893.

OAKLEY, J. H., Assistant Surgeon. To proceed to Wilmington, N. C., for temporary duty. July 24, 1893.

NORMAN, SEATON, Assistant Surgeon. Granted leave of absence for three days. July 24, 1893.

BRANHAM, J. W., Assistant Surgeon. To proceed to Brunswick, Ga., for temporary duty. July 25, 1893.

SPRAGUE, E. K., Assistant Surgeon. Granted leave of absence for fifteen days. July 22, 1893.

PROCHAZKA, EMIL, Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and ordered to report to medical officer in command, New York. July 29, 1893.

Letters to the Editor.

HAHNEMANN'S "HYDROPHOBIN."

LINCOLN, NEB., August 22, 1893.

To the Editor of the New York Medical Journal:

SIR: In the August 12th issue Dr. George F. Laidlaw requests my authority for the following statement, which occurs in an article of mine under the title *Organic Juices in Therapeutics*, published in the *Journal* of June 10, 1893:

"Hahnemann, in the early part of the present century, experimenting along the same isopathic curve, refined the crude therapeutics of the Greek and used 'hydrophobin' in the treatment of rabies."

Dr. Constantine Hering and Dr. G. H. G. Jahr both studied medicine under Hahnemann himself. Dr. Jahr wrote a work on homeopathic medicine known as *Jahr's Clinical Guide*. It was translated into English by Charles J. Hempel, M. D., who also had read medicine under Hahnemann. On page 274 of this work "hydrophobin" is recommended in the treatment of hydrophobia. On account of the intimate relations that must necessarily have existed between the famous protégé of the Grand Duke of Anhalt-Köthen and his now scarcely less famous pupils, it is but fair to assume that they faithfully reflected both his doctrine of "similars" and "infinitesimals." The statement in question is further justified by a reading of the preface to the *Clinical Guide*, in which Dr. Lilienthal, the editor, says that Dr. Jahr's work "is too valuable a work not to be clothed in the English language, in order to assist the many students who have embraced with heart and soul the glorious doctrines of Hahnemann." J. S. LEONHARDT, M. D.

CASTOR OIL AS A LUBRICANT.

INDIANAPOLIS, August 28, 1893.

To the Editor of the New York Medical Journal:

SIR: In confirmation of the views expressed by Dr. A. T. Cabot, in your issue of August 26, 1893, permit me to say that I have used castor oil as a lubricant for all kinds of catheters for over seven years, and prefer it to all others. It is non-

irritating and possesses the quality of tenacity beyond all other lubricants. If refined oil is selected and proper care used an antiseptic is an unnecessary addition, as I know one gentleman who has used the oil for the purpose stated above over five thousand times, with only good results. Always warm the oil before using and see that the phial containing it is frequently well washed with alcohol.

The external surface of the soft-rubber catheter is easily cleaned by drawing the instrument rapidly between the fingers, a bit of absorbent cotton saturated with alcohol being interposed, and this should be followed by the free use of warm carbolyzed water. Silk catheters may be washed in the same way, but *without* the alcohol; indeed, castor oil seems to benefit rather than injure these catheters. The gentleman heretofore alluded to used one twice daily for a period of eight months, and it was then nearly as smooth and quite as flexible as when new.

JOHN M. KITCHEN, M. D.

THE RECRUDESCENCE OF LEPROSY AND ITS CAUSATION.

LONDON, July 29, 1893.

To the Editor of the *New York Medical Journal*:

SIR: My attention has been called to the notice of my recent volume, *The Recrudescence of Leprosy and its Causation*, in the *New York Medical Journal*. Your critic says: "The author has assumed that leprosy has greatly increased during the last half century—an assumption that is without warrant, absolutely disregarding as it does that the *onus probandi* rests upon the assertor." Allow me to say in explanation that I recognize the responsibility of proving every one of the leading points of my contention, and if your reviewer had done me the honor of reading the first chapter of my volume he would have found not only reports of my own experience gathered from all quarters of the globe showing that leprosy has seriously increased during the past thirty years, but he would have discovered proofs to this effect from the highest medical authorities, including lepra specialists, superintendents of leper asylums, hospital physicians, and in Government reports. This chapter contains about sixty pages of closely packed testimonies and has evidently escaped the attention of your reviewer. One of the most distinguished members of the National Leprosy Fund, Sir Andrew Clark, declared, at a meeting over which the Prince of Wales presided, that the evidence was conclusive and overwhelming "that leprosy did exist in larger measure in recent years and that new germ centers were springing up in various quarters of the globe and old centers were widening. Before England and the civilized world there was looming a condition of affairs which might by growth threaten civilization." It is therefore useless to deny or attempt to minimize facts which are proved by an accumulation of testimony of the highest credit and authority.

Coming to the question of causation, to which I have devoted much attention, having examined into the evidence for all the various alleged factors, such as heredity, contagion, insolation, syphilitic cachexia, a fish diet, malaria, etc., and have quoted what the most eminent authorities have to say thereupon. All these factors, allow me to observe, have been in existence for centuries, and do not account for the recent alarming recrudescence of the disease. Upon each of them there is considerable divergence of medical opinion, as I have shown. What one authority affirms another denies, and the investigator, however patient he may be, is left in a state of hopeless bewilderment. There is, however, one cause upon which, in all the countries I have visited, there is no such confusion, but a nearly unanimous consensus of intelligent opinion—I mean inoculation. About forty pages of testimonies and

experiences are given under this head, which include those of the leading medical journals and some of the most eminent pathologists, lepra specialists, and hospital physicians in all countries. As accidental inoculation is not of sufficient frequency to account for so large a development of the disease, it follows that there must be some other cause, and that of an innovating character, or a comparatively new departure. This cause, I maintain, is vaccination, which is the only form of inoculation generally practiced, and meets the case at all points. Vaccination is admitted, though with reluctance, and sometimes with apology, by the highest authorities to be capable of transmitting and aiding the ravages of this much-dreaded disease. The authorities on this part of my case include Sir Erasmus Wilson, the father of dermatologists; Dr. John D. Hillis, formerly superintendent of the Leper Asylum, British Guiana; Dr. Liveing, Sir Ranald Martin, Professor W. T. Gairdner, of Glasgow; Dr. Tilbury Fox, Sir Gavin Milroy, Dr. R. H. Bakewell, formerly vaccinator-general, Trinidad; Dr. A. S. Black, Trinidad; the eminent bacteriologist, Dr. Edward Arning, Hamburg; Professor H. G. Piffard, New York; Dr. Walter Gibson, late president of the board of health, Hawaii; Dr. Blanc, professor of dermatology, New Orleans; Dr. Sidney Bourne Swift, late medical director of the leper settlement, Molokai, Hawaii; Dr. P. Hellat, St. Petersburg; Professor Henri Leloir, Lille; Surgeon Brunt, Dr. John Freeland, government medical officer, Antigua; Dr. S. P. Impey, superintendent of the leper settlement, Robben Island, Cape Colony; Dr. H. S. Orme, president of the State board of health, California; and many others.

For the first time there have been brought together some of the incriminating facts, comprising nearly one hundred pages of closely packed testimonies—nearly all medical—as to communication of leprosy by means of vaccination, and in addition I have given particulars of numerous cases of such communication with chapter and verse by the recording physician.

WILLIAM TEBB.

Book Notices.

Diseases of the Rectum and Anus, their Pathology, Diagnosis, and Treatment. By CHARLES B. KELSEY, A. M., M. D. Professor of Diseases of the Rectum at the New York Post-graduate Medical School and Hospital, etc. Fourth Edition, revised and enlarged. With Two Chromo-lithographs and One Hundred and Sixty-two Illustrations. New York: William Wood & Company, 1893. Pp. x-490. [Price, \$4.]

PRECEDING editions of this valuable work have been reviewed in the *Journal*, and, as its general plan and subject matter are practically unchanged, we can but reiterate the high opinion of it which we have heretofore expressed. The new material in the present edition is largely confined to the chapters upon ulceration and malignant disease of the rectum. The author's enlarged experiences with these diseases has not given him the enthusiasm of some other surgeons in regard to extirpation and resection of the rectum. While he has thoroughly mastered and ably described the various methods, including the many modifications of Kraskie's operation, he still believes that, in the state in which most cases of malignant disease are seen by the specialist, as much can be done for them by inguinal colotomy as by the more radical procedures. He says: "While it has been abundantly demonstrated that very extensive disease may be removed, and the technique of the operation has been so greatly improved that nearly any part of the rectum may be reached and extirpated rapidly and with comparative safety as to the

immediate results, the advisability of such treatment has not as yet been established. The operations are done because they are manually possible and surgically justifiable."

To those who have followed the clinics in New York for the past five years the statement that the operation can be done rapidly will appear somewhat surprising. The majority of these operations consume from an hour to three hours, and this fact has caused many to doubt that the procedures were justifiable in the cases of patients already depleted by disease. The technique may be complete, but the manual dexterity requisite to perform the operation in from fifteen to twenty minutes, as Bardenheuer professes to do, has not been developed in our clinics. When it has, as the writer believes it will be, the operation will become more popular. The author's opinion, in the present state of our knowledge and experience, is undoubtedly conservative and just.

As regards the treatment of hemorrhoids, Dr. Kelsey may be said to have "swung around the circle," having in turn indorsed and condemned almost all the leading operations. He has in the present edition about settled upon the use of the clamp and cautery as the method *par excellence*, but leaves a limited field to crushing, the ligature, Whitehead's operation, and injection. Few who depend upon this work for advice would dare to use the last, however, when they are told that it is attended with dangers of "pain, ulceration, marginal abscess, fistula, and vesical irritation," and that it does not cure.

These complications, while possible, we dare say are not so frequent as the author would seem to imply, where the operation has been properly done in well-selected cases. Moreover, there is not one of these complications that may not result from either of the other operations. We heartily agree with Dr. Kelsey in his high estimation of the clamp and cautery, but we do not believe their use possesses all the advantages or the injection method all the disadvantages in the treatment of hemorrhoids.

The work as a whole is an admirable *résumé* of the subject up to date, and we are glad to see the author reaping the reward of his labors in its frequent editions.

BOOKS, ETC., RECEIVED.

The Pharmacopoeia of the United States of America. Seventh Decennial Revision (1890). By Authority of the National Convention for revising the Pharmacopoeia. Held at Washington, A. D. 1890. Official from January 1, 1894. Published by the Committee of Revision. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. lix-602.

Scientia. A Record of Clinical Observations on the Causes, Nature, and Treatment of Sixty-eight Cases. By A. Symons Eccles, M. B. Aberd., Member Royal College of Surgeons, England, etc. London: Macmillan & Co., 1893. Pp. viii-88.

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A Case of Mediastino pericarditis in a Child; Secondary Empyema; Operation; Death. By William A. Edwards, M. D., San Diego, Cal. [Reprinted from the *International Medical Magazine*.]

The Advantages of Extension of the Head during Anesthesia and other Conditions. By Cephas L. Bard, M. D., Ventura, Cal. [Reprinted from the *Southern California Practitioner*.]

Some Successful Results in the Treatment of Epilepsy. By David Inglis, M. D. [Reprinted from the *Therapeutic Gazette*.]

Reports on the Progress of Medicine.

PUBLIC HEALTH, HYGIENE, LEGAL MEDICINE, AND MEDICAL AND VITAL STATISTICS.

By S. T. ARMSTRONG, M. D., Ph. D.

A Russian Appeal for the Sanitation of India.—The *British Medical Journal* for March 25th states that Dr. Tafeluss, of Tiflis, who has held for many years the appointment of quarantine officer on the Russo-Persian frontier, makes an appeal for the sanitation of India. He refers to the fact that the home of cholera is in the delta of the rivers Ganges and Brahmapootra, an area of 7,500 square miles, that is crossed by many tributaries of these rivers. Cholera has there had the character of an endemic plague from time immemorial, and, after heavy rains and by reason of some other unknown causes, spreads over the neighboring parts of India, sometimes traveling as a pandemic over the world. Dr. Tafeluss proposes that all our energy should be directed to that country, and, first of all, the contamination of the rivers by dead bodies thrown into them by the natives should be stopped; he reminds us that in Egypt, in the delta of the Nile, the plague has been rooted out since an ordinance was passed forbidding the burial of dead bodies close to the shore. Before that time, every year the bodies were washed out by the tide and carried to the river's mouth, where they lay about *en masse*.

Although it would be very difficult to forbid altogether the throwing of bodies into the sacred Ganges, Dr. Tafeluss thought it would be quite possible to compel the natives to cremate thoroughly, and not merely roast the bodies of their dead. The pure ashes would not do much harm. Secondly, he recommends the planting of eucalyptus trees throughout India; these would absorb the moisture of the soil and exterminate all miasmatic material, as has been shown in Algiers, where large areas of unwholesome land have been in a short time transformed into healthy and inhabitable places.

Thirdly and chiefly, Dr. Tafeluss proposes an entire canalization and drainage of the delta that would undoubtedly conduce to the sanitation of the country. As to the expense necessary for so great an enterprise, he presumes that it could hardly exceed the amount of money that is now lost at every epidemic by the populations of the various countries affected, to say nothing of the loss of millions of lives. Great Britain, instead of being damaged in her trade as she is by every pandemic, would be enriched by the addition of fertile and wholesome provinces. He does not want England alone to bear the whole burden of the sanitation of India. It is just that the governments of all the countries interested should join her in the great work of a radical stamping out of the cholera, because all of them would share in the benefits of such a work. The money might be raised by a loan guaranteed by the several governments, that might be, if necessary, supplemented by a lottery.

Cholera and Indian Water Supplies.—The *British Medical Journal* for June 3d states that the recently published report of the Sanitary Commissioner for Bengal for 1891 shows that in that year the cholera mortality amounted to 229,575, or 3.26 in

1,000 of population. The facts detailed in this report leave very little doubt that the festival of the *Aradhodayajog*, that attracted "swarms" of pilgrims from all parts of Bengal to the Ganges and its branches, contributed materially to this result. The influence of pilgrims and pilgrimages in breeding and spreading cholera has been questioned by sanitary agnostics, and Dr. Simpson's demonstration of the manner in which this very festival caused a severe outbreak of cholera in and around Calcutta, and an extensive dissemination of the disease in the surrounding districts, was disparaged not long ago by the Army Sanitary Commission. Great weight is placed on the intimate relations that exist between the prevalence of cholera and the impurity of water.

A Bacteriological Study of Cholera as observed in 1892 at the Saint-Antoine Hospital.—Dr. Lesage and Dr. Macaigae publish in the *Annales de l'Institut Pasteur* for January 25th a bacteriological study of 201 cases of cholera treated in the service of Dr. Hayem during the last epidemic of cholera in Paris and its environs. The fecal discharges were as follows: In 52 cases there were rice-water stools, sometimes very watery, containing gray flakes in suspension, sometimes a gray mush, of which epithelial elements were the base. In 56 cases there were green biliary stools with chemical reactions, showing that the color was due to biliverdin. In 83 cases the stools presented no special characteristic, being yellow and frequently glairy. In 10 cases the stools presented a red, dysenteric tint, due to the presence of blood. In 106 patients that recovered a bacteriological examination of their stools showed the cholera vibrio and the *Bacterium coli commune* in 29 cases; the cholera vibrio, the *Bacterium coli commune*, and other bacilli in 62 cases; the *Bacterium coli commune* only in 3 cases, and the *Bacterium coli commune* and other bacilli without the cholera vibrio in 12 cases. In none of the fatal cases (95) was the cholera vibrio alone found in the fæces. The authors conclude that in the epidemic of cholera, as observed at the Saint Antoine Hospital, there were several microbic varieties of cholera that were clinically indistinguishable. In those cholera cases in which the cholera vibrio was found it was always associated with the *Bacterium coli commune* or some other varieties of micro-organisms. A certain number of cases may be described as cholera due to the *Bacterium coli commune*. There is no relation between the number of cholera vibrios in the stools and the severity of the disease, for simple diarrhoeal stools sometimes contain an abundant culture of vibrios. The gravity and the mildness of the disease are alike observed in the various bacteriological varieties of cholera, the presence of the vibrio being an unnecessary factor. The reaction (systemic) caused by cholera seems to be due to a secondary infection by the *Bacterium coli commune*, the presence of which was demonstrated in various organs immediately after death.

The Dissemination of Cholera Bacilli by Dust.—Dr. Uffelmann publishes a paper in the *Berliner klinische Wochenschrift* for June 26th in which he refers to the prevalent idea that the death of the cholera spirillum in consequence of desiccation prevents its transmission through the air. He has made some experiments to determine whether cholera spirilla can remain alive in dust, and whether they can be disseminated with dust by the air. Sterilized garden earth was rubbed up in porcelain dishes with water containing the spirilla, and then exposed to a temperature of 15° to 17° R.; it dried in some sixteen hours, and was powdered and added to nutrient gelatin at varying intervals of time after the desiccation. In a specimen taken after sixteen hours thirty to forty colonies were found, while only one colony was found in a specimen taken after forty-eight hours, and none were found after the latter period.

In another series of experiments the inoculated earth was

allowed to remain untouched for eight hours after the pulverization; some of it was then blown against a gelatin plate in an isolated chamber, and six colonies of cholera spirilla were obtained. When the interval was forty-eight hours after infection no colonies were seen. Similar results were obtained with fine white sand, with street dust, and with chamber dust, though the spirilla seemed to perish earlier. Experiments were made with cholera spirilla added to diarrhoeal stools after the latter had been sterilized, with similar results, though the spirilla seemed to live a little longer. It would therefore seem that living cholera spirilla may be disseminated with dust and thus gain entrance into the mouth, the food, or water. Dr. Uffelmann, however, calls attention to the fact that this method of dissemination can not be very frequent, because the number of spirilla is rapidly diminished by drying, because material contaminated by fæces does not give rise to dust, and because, as Sternberg's elaborate experiments have shown, the spirilla soon perish when exposed to sunshine.

Flies as Propagators of Cholera.—Dr. J. G. Sawtschenko publishes in *Vratch*, vol. xiii, 1892 (*Annales de l'Institut Pasteur*, February 25, 1893), a valuable paper on the rôle played by the ordinary house fly in the propagation of cholera. The author has nurtured flies with bouillon containing a culture of the cholera vibrio, and then has subsequently searched for the micro-organism in the excrement of these insects. Two hours after feeding the flies with this bouillon the author obtained, besides a large number of colonies of different bacteria, a few colonies of the cholera vibrio. Twenty-four hours after feeding, the number of colonies of the cholera vibrio had materially increased.

In order to be certain that these microbes did not adhere to the exterior of the fly, Dr. Sawtschenko made another series of experiments in which he plunged the flies first into alcohol and then into a five-per-cent. solution of carbolic acid, so as to destroy any micro-organisms on the insect's body; the latter was rapidly dried, the body was opened, and its contents were introduced into a bouillon culture fluid. In every instance the number of cholera vibrios was considerable, and the number was always greater when the flies were allowed to live for some time after feeding on the bouillon cultures containing the vibrio. In flies that had lived forty-eight hours, the second or third culture made from the culture containing the body contents resembled pure cultures of cholera vibrios.

The author, apparently correctly, infers that his observations show that the rôle of the fly is not limited to diffusing the microbes that may be swallowed, but that the cholera micro-organisms may easily propagate in the intestinal canal of the insect. Other microbes, especially the vibrio described by Metschnikoff, preserve their virulence while passing through the fly's body.

Rags and Cholera.—The *Boston Medical and Surgical Journal* for June 8th publishes an excellent editorial on rags and cholera, in which attention is called to the fact that, while commercial interests and the protection of public health occasionally clash, still the restrictions that are devised for securing safety to the people should be neither oppressive nor unreasonable. Particular reference is made to some recent foreign correspondence of the *New York Times*, the tenor of which was calculated to make the reader believe that large quantities of rags from cholera-infected districts, and therefore cholera-infected rags, were being imported into the United States. The editorial very pertinently calls attention to the fact that, though rags are dirty, and are occasionally the medium of transmission of the infection of small-pox, yet during the sixty years in which this merchandise has been imported into the United States, during which period several cholera epidemics have oc-

curred, not a single case of cholera has ever been traced to their importation. Furthermore, no well-authenticated case of cholera has ever been reported as due to such traffic in any other country. The editorial calls attention to the facts, that have been urged in the columns of this *Journal*, that the permanence or vitality of the cholera germ differs very greatly from that of the germ of small-pox or of some of the other contagious diseases, and that writers upon this subject usually make no distinction between clothing and rags, as was shown in the sensational address of a Dr. Ruysch at the International Congress of Hygiene in 1884.

Reference is made to the experience of Holyoke, where, in 1849, several thousand laborers were engaged in building a dam and laying the foundations of the city. Cholera broke out among these laborers and caused the death of almost a hundred; yet in the following year paper mills were built and their number was increased until Holyoke became the largest paper-making and rag-using city in this country, but cholera has never appeared there since, in the epidemics of either 1854, 1866, or 1873. Hearty commendation must be given to the final sentences: "If the alarmists who are periodically clamoring for restriction upon this important industry would turn their attention seriously to the more important measures of municipal sanitation, and especially to the purification of water supplies, wherein the chief danger lies, a great public good would be accomplished, though possibly their personal ends would not be as well subserved. Much would also be gained if newspapers and their correspondents would abstain from sensationalism under existing circumstances."

The Disinfection of Rags by Sulphurous-acid Gas.—Mr. J. C. Kellogg, our consul at Stettin, and Dr. G. Laube, an analytical chemist of that city, publish in the *Abstract of Sanitary Reports* for April 21st the results of a series of qualitative and quantitative analyses of rags disinfected by exposure to sulphurous-acid fumes in tightly closed rooms. The tests with metallic zinc and hydrochloric acid, with nitrate of silver, with sulphureted-hydrogen gas, with chloride of gold, and with mercuric nitrate, all gave the reaction of sulphurous acid with the disinfected rags. Quantitatively, rags from the exterior of the piles contained more sulphurous-acid gas than those from the interior of the piles. Mr. Kellogg correctly suggests that the disinfection would be more efficacious if the rags were first baled and then subjected to the action of the gas *in vacuo*. There has never been any question regarding the access of the gas to the rags, but it is yet to be determined whether the gas is present in sufficient quantity, and whether the exposure is sufficiently long to destroy both germs and spores.

Leprosy in India.—The *British Medical Journal* for April 29th publishes an abstract of the report of the English Leprosy Commission that spent five months in examining asylums and lepers in various localities in India. An analysis of 2,313 cases showed that 56.6 per cent. were anæsthetic, 12.2 per cent. tuberculous, and 31 per cent. mixed leprosy; in over 43 per cent. the disease first manifested itself in early adult life; 9.5 per cent. of the persons produced as lepers were not affected with the disease. The Indian census figures prove that, with regard to the geographical distribution of leprosy, all tracts—sea coast, riparian areas, or large valleys—are more or less impartially attacked. No connection can be traced between the geological formation of an area and the density of the leper population. A comparison of the first, second, and third censuses of India shows that the leper population has remained stationary, being approximately 5 to 10,000 of population for each census. There seems to be some connection, accidental or other, between the dampness of climate and the prevalence of leprosy, though no relation between the heat of an area and the distribution of

the disease could be established. No relation between the increase or decrease or the density of the population and the leper ratios could be made out. Areas where cholera is endemic present certain permanent conditions that may lead to a predisposition to leprosy. Poor and insanitary conditions, bad social surroundings, and so forth, seem to be factors of importance in the ætiology of the disease.

The commission assumes the virus to be too widely spread to be battled against, just as it would be hopeless to attack the tubercle bacillus. They point out that contagion is an extremely relative term, and that the most general causes may convert a non-contagious infective disease into an easily contagious one. The commission advises that the social or hygienic conditions responsible for the development of the special predisposition should be removed or improved.

The important conclusion is formulated that leprosy in India can not be considered an hereditary disease, and the statement is ventured that the evidence that exists is hardly sufficient to establish an inherited specific predisposition, to any appreciable extent, to the disease in the offspring of leprosy parents. This conclusion was based upon the facts that a congenital case of leprosy was never met with; that in only 5 to 6 per cent. of the cases examined was there a possible true family taint; that 4 to 5 per cent. of the offspring suffered, although their immediate ancestors were free from leprosy; that only 4 to 7 per cent. of the children born of leprosy father and mother (both affected before marriage) became lepers; that with one exception all the children at the Almora Orphanage, born of leper parents, but separated from them and carefully looked after, remained healthy; that not more than 6 or 8 per cent. of all the children born after the manifestation of the disease in one or other parent became lepers; and that individuals with a true history of heredity were no more predisposed to the disease than those with a false history of heredity (where parents had become lepers some time after the birth of the child).

The commissioner's statistics show that 2,915 individuals have been the issue of 1,564 marriages, the latter representing 1,635 lepers; at the time of the report only 78 of the 2,915 were lepers, and, according to previous statistics, it is improbable that more than 150 will become hereditary lepers. The mortality among leper offspring is comparatively high, and the reproductive power of lepers is greatly diminished on account of the extensive morbid changes in the sexual glands. Of leper couples, 65 per cent. are sterile; where the husband is a leper, 60 per cent. become sterile after the appearance of the disease in him; and where the wife alone is a leper, 70 per cent. are sterile after the manifestation of leprosy in her.

The commission has arrived at the conclusion that, though leprosy must be classed among the contagious diseases, yet the risk of contagion is so small that it may be practically disregarded. It is far from being an "imperial danger." In the great majority of cases it originates *de novo*—that is, from a sequence or concurrence of causes and conditions, dealt with in the report, that are related to each other in ways at present imperfectly known. In other words, the microbe may reach the body and set up the disease quite apart from contagion, if only the required disposition exists.

The Effectual Filtration of River Water.—The *British Medical Journal* for June 24th states that at a recent meeting of the Royal Commission on the Metropolitan Water Supply, Dr. Sims Woodhead called attention to the fact that only two diseases—typhoid fever and cholera—need be taken into account in connection with the water supply. It had not been proved that the flow of rivers led to the destruction of the typhoid bacillus, but as a matter of fact that organism had never yet been found in rapidly flowing water, but in sluggish water, ponds,

wells, and stagnant pools. Dr. Woodhead thought that if everything was done that could be done to prevent river pollution, the danger of disease arising from taking drinking water from the Thames would be extremely small, provided the water was properly filtered. Efficient filtration removed dangerous organisms to, at any rate, a very large extent; still, river water must always be under suspicion. A perfect single filtration might be sufficient, as the thickness of the filter would be of far greater value in a single filter than the same thickness divided between two filters; the thickness should never be less than three feet. As the principal layer of the sand kept back a number of organisms that might grow therein, and thus extend downward into the filter bed, the sand layer should be sufficiently thick to keep back the organisms and allow the lower layers of the filter to be some distance from the sand.

Public Water Service in Relation to Typhoid Fever.—

The *Practitioner* for January publishes a résumé of two reports that were recently issued by the Medical Department of the Local Government Board on outbreaks of typhoid fever in different localities that could be traced to infection from a common water supply. The reports seem to show, first, that a definite and serious danger of typhoid fever and of allied diseases, such as cholera, attaches to the use of water derived from lands that are either subject to manuring with human excreta or polluted by means of drainage from dwellings or from streams that are liable to pollution with sewage or human excreta. Second, that there seems to be abundant evidence pointing to the fact that, while water supplies from such sources afford well-recognized means for the maintenance of typhoid fever as a current infectious disease among its consumers, there is further risk of an exceptional prevalence of that disease when the manure used on the ground from which the water is gathered, or when the sewage reaching the stream, comes from dwellings the excreta from which contain the specific contagion of typhoid fever; and this especially when, by reason of exceptional rainfall or otherwise, this contagion is conveyed in bulk into the water drawn into the reservoirs and service pipes from which the inhabitants are supplied. Third, that measures should be adopted to prevent the access of house drainage into the water collected from such gathering grounds and streams, and also to prevent any portion of a gathering ground that serves the purposes of collecting a town water supply from being so used or cultivated as to need manuring in the way described.

The Berlin Sewage Farms and Typhoid Fever.—Professor Virchow, according to the *Medical Week* for February 10th, referred, at a meeting of the Berlin Medical Society, to the occurrence in the summer and fall of 1891 of several cases of typhoid fever among the men employed on the sewage farms in the neighborhood of Berlin. While the affected men had been in the habit of drinking the water from the drains, they also lived in a locality where typhoid fever prevailed. This was the first time that typhoid had been observed in villages near these farms, as they had remained free even when typhoid was epidemic in other localities.

Eight cases were reported in the village where the fever first appeared. The drinking water used by the patients was manifestly impure, but no typhoid bacilli were found in it; since the water supply has been purified no other typhoid cases have occurred.

Although Pasteur stated that sewage farms would assist in the propagation of infectious diseases, especially of anthrax, as the anthrax bacillus was unaffected by water, not a single case of infectious disease has been traced to infection acquired from the sewage farms in Germany. Virchow stated that he insisted on the closest supervision in the management of these farms, each having attached to it a medical man, who was directed to

report every case of disease to the authorities, with all information likely to throw light on the nature and origin of the affection. The bacteriological examination of the effluent water was made by two physicians, and they had never been able to demonstrate the presence of Eberth's bacillus in it.

A slight epidemic of cholera nostras had occurred in one of the villages, affecting the inmates of a prison that were employed on the farms. The disease broke out in one of the sheds in which the prisoners were confined, attacking twenty-one men.

An objection had been made that cattle fed on the crops raised on these farms might become infected because the roots of the grass were in contact with the sewage; but cattle that were fed on nothing but these crops for several months remained in excellent condition.

The Typhoid-fever Epidemic at Ironwood, Michigan.—

The *Journal of the American Medical Association* for July 8th publishes a letter from Dr. Henry B. Baker, the secretary of the Michigan State Board of Health, regarding an epidemic of typhoid fever at Ironwood, a town of about 12,000 inhabitants. The first typhoid-fever cases were reported during the week ending May 20th, when 15 persons had been affected; for the week ending May 27th, 30 new cases; the week ending June 3d, 30 new cases; the week ending June 10th, 125 (estimated) new cases. Up to the latter date only 6 deaths had occurred. The epidemic was ascribed to a number of causes: to the general water supply; to water from wells that had in the past originated autumnal outbreaks of typhoid; to the digging up of filth-saturated soil; to the stirring up and removal during the spring of great quantities of filth that had accumulated during the winter; to a present filthy condition of some gutters and alleys; to atmospheric influences; and to some influence connected with the Ironwood high school. Dr. Baker found no sudden change in any of these conditions that was sufficient to account for the epidemic, except that there had been an unusual overflow in the vicinity of the pumping station for the general water supply. The reservoir had overflowed and probably been contaminated by the excreta of the privy for the engineer's family. [There is no evidence that any member of the family had typhoid fever.] The intake pipe of the pumping station became clogged so as to be useless for several days, and, as it was impossible to filter the water, a break had been made in the reservoir on the downstream side. A sample of the water was examined by Professor Victor Vaughan, who found that it contained pathogenic microorganisms that caused the death of white rats. Dr. Baker advised the boiling of all water for cooking and drinking purposes, that the filter capacity of the works be increased threefold, and that the reservoir for filtered water be cemented inside and outside, so as to be water-tight. The evidence is lacking in this case that the water supply was contaminated by the dejecta of typhoid-fever patients, as occurred in the well-known Plymouth epidemic; and it is possible that other factors caused the epidemic, as no information is given regarding the prevalence of the disease among those using the reservoir and those using well water.

A Method of stating the Degree of Clearness of Sewage and other Contaminated Effluents.—

Dr. A. C. Houston (*Edinb. Med. Journal*, July, 1893) refers to the lack of definiteness in saying that an effluent is more or less turbid. He suggests that on a piece of paper printed with a definite known type—pearl type, for example—a glass beaker or cylinder should be placed. The effluent to be examined is slowly poured into the vessel until the observer, looking down through the fluid, can just read the words through it. The height of the liquid is measured by placing one of the legs of a pair of compasses on the paper and the other on the lower band of the meniscus of

the fluid, the distance between the two points being found by measurement on a scale divided into inches and tenths of an inch. At first sight it would seem better to have a graduated vessel, so as to read off the height of the liquid directly; but if this plan is adopted the difficulty arises that while the focal distance of the eye is constant, the height of the liquid in the cylinder will vary with the quality of the effluent, and in the case of a very turbid fluid it may be a mechanical impossibility to bring the eye within the range of natural vision. For this reason it is necessary to employ beakers or cylinders of varying height and to use the tall or the short vessels according to the quality of the effluent. As a comparative indication of the quality of a particular effluent, the character of which it is necessary to ascertain repeatedly without the aid of chemical analyses, the method is said to be specially valuable.

The Waring Sewerage System.—Some publicity has been given during the past year or so to the statement that the city of Memphis has found the Waring system of sewerage troublesome, that there were obstructions and stoppages in the sewers, and that the city was put to immense cost in removing these obstructions. The president of the Taxing District of Shelby County, as Memphis is legally known, had complained that in the original planning of the sewers no provision was made for manholes, but that the city engineer had projected these manholes and put them in at convenient distances along the mains, thus reducing the removal of obstructions to a minimum. The president has recently published an open letter in which he states that Colonel Waring's original estimates and recommendations provided for manholes for the sewers, but for economy's sake they were not put in at the time the sewers were constructed, in 1880. The wonderful growth of Memphis has greatly taxed the capacity of these sewers, and Colonel Waring has recently inspected the existing situation. He recommends that more efficient flushing should be provided, tanks being constructed that would deliver a hundred and fifty gallons of water in twenty seconds. Such a quantity of water would fill about a hundred and fifteen feet of six-inch sewer pipe and have a scouring effect materially greater than that of the existing flush, and when delivered with rapidity it would—in connection with an occasional ball cleaning—keep the sewers in better condition than could be secured by manual labor. Colonel Waring also recommended that openings should be made in the house connections, near the property line, with suitable movable covers, so as to permit of examination for the purpose of ascertaining whether surface water or underground drainage was flowing into the sewers. Furthermore, as the sewage in time of excessive flow rises in the manholes higher than the sewage stream, and floating filth rises to the surface in the manholes, making a mass of obstructive filth when the flow recedes, the channel through which the sewers pass should be covered with iron plates laid on benches, to keep the solids within the course of the moving current. These plates, if properly supplied with lifting staples, could be conveniently handled.

Bovine Tuberculosis at the Leipsic Abattoirs.—Dr. Rieck (*Vierteljahr. f. gerichtl. Med. u. öffentl. Sanit.*, vol. iv) publishes a paper in which he states that from the opening of the Leipsic abattoirs, in July, 1888, to the end of December, 1891, 67,077 cattle had been killed, and 13,688 of these, or 20.4 per cent., were affected with tuberculosis. Of the cows 26 per cent., of the oxen 19.5 per cent., of the bulls 15.4 per cent., and of the heifers 9.3 per cent., were tuberculous. Annually the percentage of tuberculous cattle had increased, being 14.9 per cent. in 1889 and 26.7 per cent. in 1891. The curve of the percentage of tuberculous cattle pursued a regular course each year, ascending from January to April, and then gradually descending, reaching

the minimum from September to October. Of the 13,688 tuberculous cattle, 11,066 (80.8 per cent.) had the lungs or the bronchial ganglia alone infected. Tuberculosis of the serous membranes was found in 10.8 per cent. of the affected animals, being twice as frequent among the female as among the male animals. It was limited to the pleura in 57.4 per cent. of these animals; it affected the pleura and peritoneum in 36.8 per cent., and it was limited to the peritoneum alone in 5.7 per cent. Rieck invariably found that the neighboring lymphatic ganglia were affected in tuberculosis of the serous membranes. Pleural and peritoneal tuberculosis was more frequent in the female, and pleural tuberculosis in the male animals. There was not sufficient difference in the proportion of peritoneal tuberculosis in the two sexes to support Schneider's idea that the tuberculous infection very frequently had its point of departure in the uterus. Generalized tuberculosis occurred in three per cent. of these animals, most frequently in heifers.

The Inspection of Dairy Herds in Massachusetts.—The Massachusetts Legislature recently enacted a law providing that the officials of each town or city must appoint every year one or more inspectors, whose duty it should be to inspect cattle that were to be slaughtered or from which milk was taken. When an animal having a contagious disease is found, the discovery must be reported to the local board of health and to the secretary of the State Board of Cattle Commissioners. The statute states that tuberculosis, glanders, farcy, Texas fever, rinderpest, rabies, pleuro-pneumonia, and foot-and-mouth disease are the contagious diseases. All herds shall be examined at least once in three months, and a certificate of the health of the animals is to be given to the owner. Diseased animals must be isolated and their milk destroyed. The cattle commissioners may charge to the owner the expense of quarantining and killing diseased animals; their orders shall take precedence over any issued by the local board of health, and violation thereof is punishable by fine.

Typhoid Fever from a Dairy Farm.—The necessity for the sanitary supervision of dairy farms has been recently shown by a local epidemic of typhoid fever at Oakland, Cal. The drainage of the place follows the natural slope from the foothills to the bay. The *San Francisco Examiner* states that within the two weeks ending July 2d more than three hundred cases of typhoid fever had been reported to the local board of health, although until within two months there had not been a case of typhoid fever in the city. At the beginning of the latter time a case of typhoid fever occurred at a dairy farm, and the attending physician states that he exercised every possible sanitary precaution. The patient recovered in some six weeks, and ten days subsequently another case of typhoid occurred at the dairy and simultaneously several cases appeared in Oakland. Within a week after the appearance of the first case in the latter city more than two hundred cases were developed. It does not appear that the attending physician warned the city health authorities or took effective measures to protect those to whom milk from this farm was supplied. The health officer of Oakland reported that more than three fourths of the cases were found in families supplied with milk from this dairy. The dwelling house in which the original cases occurred is situated near a tank or pool, and twenty feet higher than this receptacle; through the grounds of the farm passes a small stream of water, very dirty and greatly defiled with animal excreta and even the rotting remains of dead animals, bones, etc.; the water from this stream runs into the tank, and from this tank was taken the water with which the milk cans were washed.

Alum in Baking Powder.—The *British Medical Journal* for May 5th contains an abstract of an appeal of a grocer con-

victed of selling baking powder containing alum. The public analyst's certificate showed that the powder contained 39 parts of alum, and that official stated that in his opinion the use of alum in bread was prejudicial to health. The correctness of his certificate was not questioned. He stated that by following the instructions on the packet a four-pound loaf of bread would contain three hundred and sixty grains of the powder, and four tenths of that would be alum. The reaction that took place when the powder was used resulted in the formation of aluminium hydrate, sodium sulphate, potassium sulphate, carbonic acid, and water, and the aluminium hydrate formed would average one sixth of the alum. When the bread was eaten the aluminium hydrate was dissolved by the gastric juices and aluminium chloride was formed. To test this latter statement, aluminium hydrate was given with food, the meal was vomited, the vomit was dialyzed through vegetable parchment, and aluminium chloride was obtained from the dialysate.

Another public analyst testified that aluminium hydrate was readily soluble in the gastric juice, aluminium being readily extracted by a solution of hydrochloric acid of half the strength of normal gastric juice from loaves of bread made with this baking powder.

Professor Dunstan, of St. Thomas's Hospital, testified that aluminium hydrate, baked at a higher temperature than that of the interior of a loaf, was soluble not only in weak hydrochloric acid and in a dog's gastric juice diluted to a strength similar to that of human gastric juice, but also in a weak solution of sodium carbonate of the strength of intestinal juice. He had detected aluminium in the urine of a man fed upon bread made with this baking powder.

Several witnesses testified for the appellant that, in their opinions, aluminium hydrate was insoluble, that injurious effects would not be produced by the use of the powder in food, and that they were not aware of any bad effect having been traced to the use of baking powder containing alum.

The hearing of the expert testimony occupied five days, and the court dismissed the appeal with costs, affirming the conviction of the lower court.

In this connection the experiments may be recalled that were made by Paul Siem on the action of the aluminium salts administered subcutaneously in animals. No symptoms were caused for three or four days; then the animal suffered from loss of appetite, obstinate constipation, emaciation, languor, and disinclination to move. Next there were vomiting and loss of sensibility. When the animal was forced to move, the leg was raised, but trembled and twitched violently and was with difficulty placed on the ground. Sometimes there was general tremor or convulsive twitching, and sometimes extreme weakness or partial paralysis of the posterior extremities. The power of moving the tongue and of swallowing was completely lost, and the symptoms resembled those of acute bulbar paralysis in man. As the ætiology of this disease is often obscure, it might be well to consider the possibility of chronic alum poisoning.

Plumbism occurring in Steel Manufacturers.—Mr. Fray Ormrod, L. R. C. S., reports in the *British Medical Journal* for June 17th that certain manganiferous ores used in the manufacture of "Spiegeleisen," one of the ingredients used in the Bessemer process, contain several minerals, one of which is lead. A considerable quantity of lead escapes by the slag hole, some also coming out with the "Spiegeleisen" at the time of casting. In the latter instance, where the surface of molten metal is extensive, dense yellowish-white fumes are given off; these fumes have been found by analysis to contain from 64.5 to 74.5 per cent. of lead oxide. The men employed at the front of the furnace are exposed to these fumes for variable periods;

those at the slag hole are exposed for almost the entire eight hours' shift; while those at the pig beds are only exposed at the time of casting, once every four or five hours. The inhalation of these fumes produces sudden and severe symptoms of lead poisoning. This form of plumbism differs from others in that the lead enters the system as a vapor, either of volatilized metal or oxide finely enough divided to appear as smoke; the melting point of iron, at least 1,000° above that of lead, volatilizing the latter and the air oxidizing it. Colic, anæmia, and emaciation are the most frequent disorders in the men exposed to the lead fumes; and, with the exception of a fatal case of peripheral neuritis, no local or general paralysis has occurred, though for months at a time the men's systems have been under the influence of lead, some men having been laid up for a fortnight at a time at least a dozen times in two years.

Infant Mortality in Liverpool.—Dr. H. R. Jones and Mr. Herbert F. Davies read a paper on the excessive infant mortality in Liverpool, its causes and prevention, at a recent meeting of the Literary and Philosophical Society. An abstract of the paper, in the *British Medical Journal* for March 25th, states that by "infants" children under one year of age are meant. While the infant mortality for the whole of England for the ten years 1881 to 1890 was 142 per 1,000 births, the rate in Liverpool during the same period was 188, being an excess of 41 deaths per 1,000 births. The average number of children born annually in Liverpool exceeded 19,000, so that more than 7,700 infants died in those ten years who would have lived if they had enjoyed the average chance of life that prevailed throughout England and Wales. As to the causes of the excessive infant mortality in Liverpool, that from zymotic diseases might be ascribed to the density of the population; that from lung diseases to overcrowding and its attendant insanitary conditions; that from diarrhœa, atrophy, debility, and privation, to ignorance and neglect; while the excess from violence explained itself. Liverpool was notoriously the most overcrowded city in England, the population numbering 99 to the acre, or 115 if the docks were included. Of every 1,000 children born in Liverpool, 9 died during infancy by violent means, whereas the rate for all England was only 3. The conclusion could not be avoided that the great source of this criminal violence was drink, Liverpool having more drunkenness than any other English city.

The Vital Statistics of Russia.—The *British Medical Journal* for July 15th publishes a review of the annual report upon the health of the Russian Empire during the year 1890. The total population in 1890 was estimated at 116,652,610; the birth-rate was 46.1, and the death-rate 33.5 in a 1,000. These figures show a marked falling off in the natural growth of the population; in 1887 the birth-rate was 15, in 1888 it was 16.6, and in 1889 it was 14.3 in a 1,000. These figures are approximate only, no general census having been taken since 1857; the population in subsequent years being obtained by a calculation based upon the preponderance of births over deaths. The death-rate in European Russia in 1890 was 34.2, in 1889 was 33.4, in 1888 was 31.4, and in 1887 was 31.8 in a 1,000. The increase in the death-rate in 1890 is attributed to the greater prevalence of typhoid fever, whooping-cough, measles, phthisis, dysentery, cholera nostras, gastro-intestinal catarrh, and epidemic influenza. The diminished prevalence of small-pox may be attributed to the increased and voluntary practice of vaccination, about sixty-three per cent. of the children born during the three years ending 1890 being vaccinated. Leprosy would appear to be slightly on the increase; in 1888 there were 664 cases; in 1889, 792 cases; and in 1890, 839 cases of that disease reported. Venereal diseases appear to prevail to a disastrous extent in many parts of the country, being most prevalent in

the Caucasus and the governments of the south and east. Hundreds and even thousands of farm laborers flock to these districts at the time of the harvest, and their conditions of life are such as to allow of unchecked and wholesale promiscuous intercourse. Returning to their homes, the peasants carry with them any disease that they may have thus contracted; in this way venereal diseases are widely disseminated throughout the country, each case becoming a fresh center of infection, both by ordinary and by sexual intercourse. One instance is mentioned in which a peasant thus infected in the course of four months no fewer than twenty-three persons. The sanitary condition of inhabited localities is far from satisfactory, only Odessa, Warsaw, and Yalta having sewerage systems. The water supply is very generally condemned, only forty-six out of eighty-six towns that are the centers of governments possessing water works; of these, nine distributed water of impure quality, and in twenty-two both the water-works supply and the water obtained from other sources were of bad quality.

The Birth and Death Rate in Europe.—The *British Medical Journal* for August 5th publishes an abstract of a paper by M. Langlois in the *Annales d'hygiène publique et de médecine légale* that gives some highly interesting figures: "Everywhere in Europe there is a continuous and gradual diminution in the number of births. Thus, in England in 1879, there were 34.7 births for each 1,000 inhabitants; but in 1890 the figures were 30.2 births for each 1,000 inhabitants, after having been successively 33.9 (1881), 32.5 (1885), 30.6 (1888). In Belgium in 1879 the number of births were 31.5 for each 1,000 inhabitants; in 1890 the births were but 28.7. In the German Empire in 1879 the number of births to each 1,000 inhabitants was 38.9; in 1890 this proportion had fallen to 36.7. In Prussia proper the proportion in 1879 was 39.2; it was but 36.6 in 1890. Thus throughout Europe there has been an increasing diminution in the number of children born. In France, however, this decrease is more marked than in other countries, because the proportion of births is lower than elsewhere. In 1879 there were 25 children born for each 1,000 inhabitants; in 1890 the proportion was but 21.8, or a diminution of nearly one sixth. Yet, to form a just estimate of the effect of this decrease of births on each country, we must take into account the mortality of the country. The nations of Europe, for this purpose, may be divided into three groups; those of the south: Spain, Austria, Italy, even Germany, in which countries the number of deaths in 1890 varied from 32 to 25 for each 1,000 inhabitants; those of the center: France, Belgium, Switzerland, of which the respective proportions were 22.01, 20.21, 20.82, for each 1,000 inhabitants. Finally, the people of the north: England, Denmark, Sweden, Norway, where the respective proportions of deaths were 19.01, 17.19, 16.84, 16.14, for each 1,000 inhabitants. Thus it will be observed that while France has fewer births than any other country of Europe, in regard to mortality she occupies an intermediate position. The south of Europe, contrary to general opinion, has a much higher mortality than the north, especially for children, of which the mortality comprises a considerable proportion of the number of deaths in each country. The mortality of children in France is frightful, although there is no increase, but rather a diminution, in the number of infants which die during their first year. If from 1806 to 1809 22 per cent. of the newborn children died, the percentage in 1860 was but 17.63, and it fell to 15.76 in 1888, to 14.82 in 1889, while in 1890, a year of epidemic which did not spare children, the percentage was 16.77. We have to admit that out of 1,000 children born in France, 167 die in their first year; and this number is altogether too large, notwithstanding that Bavaria loses 312 in every 1,000, Italy 212, Switzerland 190, Belgium 174. The public hygiene of a country which, out of 800,000 born, loses

167,000 in their first year, is manifestly inefficient, although enormous progress has been made in the last ten years."

The Isolation of Infectious Diseases in London.—The *British Medical Journal* for June 17th, states that at a recent meeting of the Metropolitan Asylums Board it was stated that on an average only fifty per cent. of the fever and diphtheria cases requiring admission to the manager's hospital could be dealt with. At Deptford recently, where scarlet fever was prevalent, there were patients that ought to be removed from their residences, but absolutely no place to remove them to. As the board had failed to provide the accommodation that it has educated the public to expect, patients must either be left in their own homes, with a fair probability of spreading the epidemic more widely, or at a moment's notice temporary isolation hospitals must be improvised all over London, with scratch staffs of doctors, nurses, and attendants, all of whom would be scattered to the four winds so soon as the epidemic subsided. The difficulty is not lessened by the fact that, even to make such provision, the authorities would have to run the gantlet of injunctions and local opposition to their hospitals. These problems are confronting health boards throughout the United States, and apparently the sooner the question is grappled with and settled, the better for all concerned.

School Quarantine.—The *Medical Week* for July 28th states that Dr. Ollivier has read a report on this subject which may be summarized as follows:

In a communication to the Academy in May last, Dr. Gréard insisted on the necessity of introducing certain modifications in the regulations in force at the present time in schools and colleges on the duration of the period of isolation for infectious disease.

Dr. Gréard's letter was referred to the Section of Public Health and Forensic Medicine. After giving the matter the most careful consideration, the section is now in a position to formulate the following conclusions:

A.—(1) Children affected with small-pox, scarlatina, varioloid, and diphtheria should stay away from school for forty days from the date of the first appearance of the disease—i. e., from the commencement of the period of invasion.

(2) The period of quarantine need not exceed sixteen days in the case of measles and variella.

(3) In respect of whooping-cough, isolation should be continued for three weeks after the disappearance of the characteristic cough.

(4) In the same way in mumps it should be continued for ten days after all local manifestations have subsided.

B.—(1) The patients should be submitted to the following measures of disinfection before they are allowed to return to school:

Douching of the nasal, buccal, and pharyngeal cavities with antiseptic solutions.

General scrubbing with soap and water, the hair inclusive. Thorough disinfection by steam under pressure of the clothes the patient was wearing when he was taken ill.

(2) In accordance with the regulations at present in force:

(a) The room occupied by the patient should be thoroughly ventilated. The walls and articles of furniture should be disinfected with a 1-to-1,000 solution of corrosive sublimate. The curtains, bedding, and mattress should be sent to the steam stove.

(b) Patients contracting one of the infectious diseases above enumerated outside a public educational establishment can not be readmitted unless they produce a medical certificate to the effect that the above-mentioned measures of disinfection have been carried out, and specifying the exact nature of the affection as well as the duration of the period of isolation.

The Preservation of the Hymen from a Medico-legal Point of View.—While no well-informed physician would for a moment believe that the absence, or the existence of vestigial remains, of the hymen was good evidence that a woman was not a *virgo intacta*, there are reported cases in which the existence of a hymen has interfered with the delivery of a pregnant woman.

The *Medical Week* for July 14th gives the report of a recent meeting of the Paris Medico-legal Society, at which Dr. Motet reported an interesting medico-legal case in which the plaintiff, a woman whose first husband had died after eighteen months of married life, married a second time; after cohabiting eight months with her second husband she brought an action for divorce on the ground that her husband refused to fulfill the obligations of matrimony. She was submitted to a medical examination, when it was found that her hymen was still intact. The court held that the medical evidence was very much weakened by the fact that the plaintiff had already been married once, and that there was no evidence whatever of voluntary abstention on the part of the husband. Dr. de Beauvais stated that he had seen a case of pregnancy with unruptured hymen in a domestic servant who had been raped by her employer. She had consulted a medical man immediately after the act, but from the presence of the hymen the latter had regarded her as a *virgo intacta*. Dr. Vibert advised that in a medico-legal examination one should take into consideration not only the state of preservation of the hymen, but also any inherent peculiarity that might be present, such as a resistant nature of the hymen. Dr. Guillot very properly called attention to the fact that rape does not consist so much in the destruction of the hymen as in the more or less complete carnal knowledge of a woman without her consent. This is so for the case that under the law a prostitute may bring an action for rape. Dr. Christian said that in a case similar to that referred to by Dr. de Beauvais, the physician, before concluding that the girl had not been raped, should examine her for ecchymoses, traces of seminal fluid, etc. Dr. Motet also reported a case of a girl of sixteen who had been arrested in the street and sent to the venerable wards of the Lyons Hôtel Dieu for treatment for venereal disease. While she was there it was discovered that she was in an advanced state of pregnancy, although her hymen was intact and the orifice of the vagina barely admitted the little finger. The girl stated that she had been raped a few months previously.

New Inventions, etc.

A CANNULATED SURGICAL NEEDLE.

By W. T. HAMILTON, M. D.,
IRONATON, ALA.

I HAVE, with the assistance of Messrs. Tiemann & Co., of New York, got up a new cannulated surgical needle which answers admirably the purposes of every-day surgical practice. It is in truth a modification of the Crofford needle, with the eye in the point like a ligature or artery needle; it permits the use of the ordinary silk suture thread or catgut, with which a very pretty loop suture can be made, while the cannulated feature of the instrument adds fourfold to its value, as it makes practically two instruments in one. With it the silver hare-lip

pin, lead, silver, or britanna wire is used, either with or without the figure-of-eight twist of the thread, as the case may demand. This feature will be found particularly suitable in scalp and wounds of the face. I have used the instrument repeatedly



of late and found it to answer all drafts made upon its convenience and utility. It is made by Messrs. Tiemann & Co. in two sizes—one for heavy work, so to speak, such as abdominal surgery, ruptured perineum, etc.; the other smaller, lighter, and more adapted to general service. The woodcut illustrates the instrument.

Miscellany.

The Postponement of the International Medical Congress.—In a leading article the *Lancet* says:

"This change in what the profession throughout the world has regarded as a 'fixture' has come upon it as a considerable surprise. Indeed, nowhere more than in Italy does it seem to have been less anticipated, for, up to the eleventh hour, the organizing committee was intimating from its seat in Rome its acceptance of 'adesioni' from representative physicians, surgeons, and sanitary officers all the world over—'adesioni' or pledges given on the expressed or implied understanding that the congress was to meet on September 24th. From the same central authority, moreover, till quite recently, arrangements were announced enlarging the scope and the *personnel* of the gathering, such modifications in the original programme being possible or practicable only on the assumption that the autumn and not the spring was to be the season of rendezvous. Not only the congress, but its hardly less important accompaniment, the International Exhibition of Hygiene, was so far advanced toward completion that the time for receiving exhibits was officially declared to be closed, while the disposition and allocation of such as had already come to hand—many of them, be it noted, of a quality which, if not perishable, does not improve on keeping—were already in progress. Now, like a 'bolt from the blue,' all these preparations or finishing touches are arrested and the 'triennial parliament of the healing art,' as it was designated in these columns, is so far a misnomer that its next meeting will not take place till well into the 'quadriennium'—the Easter of 1894.

"This is much to be regretted on many grounds. As already demonstrated, 'præconis ad fastidium,' the last week of September was the one period of the twelvemonth which—the climate of Rome being considered in conjunction with the business engagements of practitioners and teachers alike—was that most free from objection as the meeting time of the congress. It was the date fixed by a common consent, which was arrived at after much correspondence and exchange of views between the leading centers of practice and education in both hemispheres. It was the date, moreover, at which the capacity of Roman hotels and *pensions* is put to the least strain by the tourist or traveling world—the date at which the congress could have held its sittings undisturbed and undistracted by the pressure of such non-professional interests as (at Easter, for example) are at their height in the Eternal City. It was the date when, as the Romans themselves say, according to 'una sperienza secolare'—the tradition of centuries—the climate is most equable and the weather delightful, and when the 'congressisti,' having appropriately wound up their autumnal holiday by just a taste of Rome's intoxicating 'Ottobrate,' would return to their duties in the professional chair, the biological laboratory, the clinical ward, or the private sick-room, refreshed and sustained for

the close of one working year and the opening of another. *Dis aliter visum.*

"There is no doubt that the grounds on which Dr. Baccelli and his fellow committeemen have postponed the congress are more than sufficient to justify the step. The stealthy, insidious approaches of the Asiatic scourge, at first so insignificant as well-nigh to lull suspicion, are now transformed into something like a 'reconnaissance in force,' to use the military phrase, portending, if not actually announcing, a 'general advance.' From official, and still more from non-official, sources, particularly in France and Russia, the organizing committee in Rome have received intelligence which would make further inaction culpable; intelligence that cholera has in these countries, if not in others assumed an epidemic form, demanding the presence at the various infective foci of all the medical surveillance that can be brought to bear, and making even temporary non-attendance at the scene as unprofessional as it would be blameworthy. Italy herself, it is safe to assume, is even more gravely affected by the advancing enemy than her official intimations would let the outside world believe—at any rate she is suspending movements and gatherings customary at this season to an extent not quite consistent with such sanitary reports as appear in her public press. The grand manoeuvres of her army, there is now no longer any doubt, will be suspended for the autumn or until such time as the epidemic is in full retreat. If a partial exception to this *mot d'ordre* of the 'Ministero della Guerra' be made, it will include (so we are on high authority assured) only such army corps as have registered no case of the disease, and even in these the manoeuvres will be limited to what are called 'manovre di compagnia.' In spite of official or semi-official contradictions, we are also in a position to state that the conscription, already begun in central Italy, has been suspended in more than one quarter of the Alta Italia, where, as our columns have already shown, there have been many cases of cholera, more than half of which have proved fatal. On the other hand, with an activity in significant contrast to the inaction of the land forces, the Italian navy will carry out its customary evolutions on the high seas—this year in Neapolitan waters.

"So at whatever inconvenience to transatlantic or colonial 'congressisti'—an inconvenience, however, which could not but be less than that imposed by quarantine on their return from a cholera-stricken country—the medical world must bow to the *force majeure* of sanitary conditions and resign itself to meeting in congress at the far less desirable season of April, 1894. Not that there are no compensations for this untoward change of programme. The meeting of September 24th would, it is an open secret, have overtaxed the resources of the Eternal City, rehabilitated though it has been under no auspices more energetic than those of Dr. Baccelli. For one thing, the influx of intending participants at the gathering so far exceeded all calculation as to be likely to put to a severe test the capabilities of even larger and richer communities than that of Rome. It was, no doubt, in compliance with the most hospitable instincts, but at the same time equivalent to a courting of confusion or worse, that the medical students of Italy—if not those of other countries—should have been admitted to a gratuitous participation in the proceedings. When the number of what we may call legitimate members reached the formidable total of some nine thousand it was surely a stretch of good nature to add to the inevitable overcrowding by the free admission of half as many more undergraduates, whose appreciation of the discussions could at best have been imperfect. Another consideration is that the unprepared condition of the Policlinico—the edifice in which Dr. Baccelli hopes to inaugurate the rehabilitation of Italian medicine—is such that only a limited part of it would have been available for the vast assemblage invited to meet in it next September. We are informed that a special grant has been set apart by the State for the urgent completion of the as yet but partially constructed building; but, from what we can gather, all the energy in the world, backed up by more than half the means the Italian Treasury can afford, would scarcely suffice to put it next Easter in a condition to accommodate so many thousands. The suggestion—not made lightly—that the grand structures of imperial Rome—grand even in their ruin—the Colosseum, for example, or the baths of Caracalla or Diocletian, temporarily fitted up for the biggest medical congress the world has yet seen, might solve the difficulty of

accommodation most satisfactorily. They have been used—the baths of Caracalla particularly—for similar purposes already and might be so employed again. The awning that in the heyday of the Colosseum was spread over the vast arena by the marines of the Roman navy to protect the spectators from sun or rain is a resource which might once more be made available for the meeting of 1894. The temporary woodwork that, in 1869-'70, converted a transept of St. Peter's into a sufficient chamber for the multitudinous Ecumenical Council is a device that could well be applied to either of the commodious and many-chambered baths above referred to. In any case the six months gained by postponement will give the organizing committee time to adjust its preparations to requirements only realized at the eleventh hour, and to mitigate its own disappointment as well as that of its guests at a sudden change of programme to a season less happily chosen than that originally selected."

Salol as an Intestinal Antiseptic.—Dr. E. Mansel Symptom contributes the following to the August number of the *Practitioner*: "The action of salol in the human body is now well known and is briefly as follows: After having been swallowed and passed through the stomach unchanged, it is split up in the duodenum by the pancreatic juice into its constituents—salicylic acid and carbolic acid. Their action will be alluded to more in detail later on, but it may here be said that they are thrown out of the body partly by the kidneys (the urine not infrequently being blackened by the carbolic acid) and partly by the intestinal tract in the faeces. And from experiments on dogs whose pancreases have been extirpated, there seems to be reason to think that salol can be absorbed from the intestine without the intervention of the pancreatic juice. As to its action on digestion there are different opinions; some authorities say that it unsettles the digestive processes and that it actually sets up gastric trouble. These statements refer to its action in typhoid fever, which will be mentioned presently; other observers have, however, noted directly the contrary results. I have personally taken salol in five-grain doses three or four times a day, both before and after meals, when I have been perfectly well, without experiencing the slightest interference with digestion or appetite. The following experiments will show, however, that salol does appreciably affect the different digestive ferments so far as regards their rate of action:

"*Experiment I.*—Ten grains of arrowroot were boiled in two ounces of distilled water, cooled down to 100° F., and ten minims of Bleasdale's pancreatic essence added. The solution became perfectly clear. When one grain of salol was added before boiling, the starch required twice the amount of pancreatic essence, and an hour's more time (being kept at the same temperature) before the conversion was complete. If the salol was merely added with the essence it made no difference. The same results followed, only less marked, from the use of half a grain of salol.

"*Experiment II.*—Five grains of boiled and finely chopped-up white of egg were pounded up with the following mixture: Bengel's liquor pepticus, twenty minims; dilute hydrochloric acid, ten minims; and two ounces of distilled water. For four hours this mixture was kept at a temperature of 100° F. The albumin had entirely disappeared and the mixture gave evidence of containing peptones. The addition of half a grain of salol checked the process considerably; at the end of the same time there were several fragments of egg undissolved, and two or more hours were required for complete dissolution. Both these sets of experiments were frequently repeated and the results were distinct and constant."

"Before finishing this brief account of salol, it may be said that it has been accused of producing herpes and of increasing the delirium which frequently occurs in the course of typhoid fever. I have not noticed this latter myself either in that complaint or when I have used salol in cystitis.

"In normal digestion the semi-digested acid chyme is poured out from the pylorus into the small intestine, to be exposed to the influ-

* Similar experiments made with salicylate of sodium showed that this drug had no action in pancreatic digestion, but about the same as salol in peptic digestion.

ence of the bile and pancreatic juice. These complete the digestion of the various food stuffs, and some of the products of this digestion are due to the micro-organisms which are present in the intestine. Their work seems to be modified or kept in check by the presence of bile, for, as Foster remarks, 'Bile possesses some antiseptic qualities. Out of the body its presence hinders various putrefactive processes; and when it is prevented from flowing into the alimentary canal the contents of the intestine undergo changes different from those which take place under normal conditions and leading to the appearance of various products, especially of ill-smelling gases.'*

'The stomach undoubtedly is responsible for some cases of dyspepsia, where the chyme is passed on to the intestines in an imperfectly prepared manner, which produces duodenal disorder. But in the following class of cases we have, I think, evidence that occasionally the secretions poured into the intestine are at fault. The patient is probably of a 'bilious' temperament, he may have a clean tongue with great loss of appetite and consequent loss of flesh; no pain during a meal, but coming on about two and a half to three hours after. Very likely he is constipated and when his bowels are relaxed the motion is grayish white. 'As a rule, he will not suffer from nausea, only a little retching sometimes, and instead of the gas being acid, as it so often is, it may be quite alkaline and 'soapy,' as a patient once told me. The seat of pain is the lower part of the abdomen and is relieved by passing wind. There will perhaps be a slight yellowness, hardly amounting to actual jaundice. These cases belong, I believe, to the same class as those described by Dr. Allchin in his lectures on duodenal indigestion. I also believe that the symptoms are due to excessive and faulty fermentation in the small intestine, owing to alteration in character and amount of the ordinary digestive fluids and more particularly of the bile. I have given dilute nitrohydrochloric acid to the patients, sometimes combined with liquor pepticus, to help the stomach to do its work properly; but it has made little or no difference in their condition. And opium in any form by the mouth has not given that speedy relief which it does in gastric affections. So, latterly, I have been in the habit of beginning with four or five grains of calomel, and following it in an hour or two's time with ten-grain doses of salol every four hours. This, to use the language of a somewhat enthusiastic patient, 'acts like a charm' when taken about an hour and a half after meals. The pain ceases, the swelling of the abdomen does not appear, the appetite improves, and, more important still, the wasting (due, I presume, to the non-digestion of a large part of the food) departs.

'Another complaint wherein I have found salol exceedingly useful is a form of infective diarrhoea. Some months back I saw a family in a village near Lincoln who all had diarrhoea, passing dark-brown watery stools five, six, seven, or eight times in the twenty-four hours, attended with severe abdominal pain. In a few days several of the inhabitants of the village were seized with the same complaint, and every one had been into the first-mentioned house. Several more got it from the second source of infection. I regret that I was unable to discover any probable origin of the disease. I tried opium alone in some of the cases, but its action was far inferior to that of salol, whether combined with opiates or not.

'In cases of ordinary diarrhoea, too, there are few remedies which more speedily check the flow and the pain than ten-grain doses of salol. Some years ago, in the *Lancet*, I advocated giving glycerin of borax in the diarrhoea of infants, believing that undue fermentation in the intestines was the *fons et origo mali*. It does answer well, as I have over and over again seen; but I prefer in the severer cases to use salol in doses proportionate to age, as being a little more certain, more antiseptic, and almost as agreeable to take.

'Lastly, I have been using salol exclusively in typhoid fever, not so much on the idea of combating the specific poison, but of cleaning and keeping clean the intestinal tract, and so subduing the irritation of the glands of Peyer's patches and other ulcers there, and that caused by the secretion from these ulcers in the intestine. Salol also pre-

vents the excessive formation of wind, which is sometimes so vexatious a trouble to the patient. Salol brings the temperature down generally one or two degrees, causes abundant perspiration (this can be readily combated by giving oxide of zinc, tincture of belladonna, and some quinine in a mixture), reduces the number of stools from twelve or fourteen in the twenty-four hours to three or four, and, when they are offensive, deprives them of any odor whatever. No bad effects were noticed with regard to its action in producing delirium. Its use was continued in typhoid fever for about a week after the disappearance of diarrhoea. It was always given in ten-grain doses suspended by means of compound tragacanth powder, at first (in typhoid fever and other complaints) every four hours, then every six, and for the last week three times a day. It was always given after food.'

A Proposed Milligrade Thermometer.—In the July number of the *Indian Medical Record*, published in Calcutta, there is an interesting article On the Milligrade Thermometer of Galileo, by Dr. R. Temple Wright, surgeon and lieutenant colonel in the Indian Medical Service, in which he says:

'The centigrade scale is now used in all countries for scientific purposes, and all chemical and physical text-books give the formulae for converting the readings on Fahrenheit's scale and Réaumur's scale into centigrade, and *vice versa*.

'But this is a troublesome process, so comparative tables are published, in which one can see the various readings at a glance, but they usually go no higher than the boiling point of water and no lower than the freezing point of mercury.

'These are utterly useless for the extremes of heat and cold just mentioned, so I have constructed tables of comparative temperatures, ranging from +1,000° F. to -1,000° F., by which one can see at a glance the readings in these three scales and in a fourth. That other I call the milligrade scale, and I dedicate it to the memory of the illustrious Galileo, whose tercentenary was celebrated the other day, the father of modern science, for which he became a martyr, losing his liberty, and very nearly losing his life.

'The following notes show that he was the first to apprehend the scientific principle of thermometry, and, as he made his degrees represent thousandths of the volume of the bulb, I would propose now that we should accept his suggestion and divide each degree of the centigrade scale into ten parts, thus having 1,000 degrees between the freezing point of water and its boiling point.

'The centigrade degrees are so large that we frequently are obliged to use fractions for recording observations, and it is only the convenience of using whole numbers that has made the clumsy scale of Fahrenheit so popular.

'International jealousy would probably prevent countries which have adopted Fahrenheit's scale and Réaumur's scale from bringing the centigrade scale into common use, but our common veneration for Galileo ought to make all nations willing to adopt the milligrade scale, which can be equally convenient, both for science and for common use.

'We already have a precedent in the barometer, for on the continent of Europe the height of the mercury is expressed in millimetres, and in graduating thermometers the boiling point of water is noted at a barometric pressure of 760 millimetres.'

'The supporters of binary subdivision commonly object to the decimal system of notation on account of its fractions, and though this trouble may occur in the centigrade scale, the difficulty almost disappears in using the milligrade scale, in which it becomes easy to combine, in a practical way, the advantages of both decimal and binary subdivision with the volumetric system.

'Thus, if the whole be 1,000 on the scale,

then half,	or $\frac{1}{2}$,	will be 500,
" a quarter,	" $\frac{1}{4}$,	" 250,
" an eighth,	" $\frac{1}{8}$,	" 125,
" a sixteenth,	" $\frac{1}{16}$,	" 62.5,

and even the last is by no means a troublesome fraction.

'To obtain the full advantage of the milligrade thermometer, we must take for zero the freezing point of water, as in the centigrade scale,

* Foster's *Physiology*, 1889, p. 426. Also see a very interesting paper by Professor C. S. Sherrington, The Escape of Bacteria with the Secretions, *Journal of Pathology and Bacteriology*, February, 1893.

which would seem to be the natural starting point for measuring heat, not the freezing point of mercury, as Fahrenheit did, for the annexed tables show at a glance that this clumsiness must cause many temperatures which frequently occur to be noted in most awkward fractions. With this proviso it becomes quite easy to express and to remember temperatures on the milligrade scale—*e. g.*, we say 'It is freezing,' when we register $+32^{\circ}\text{F.}$, or $+0$ on the centigrade and milligrade scales.

"It is very cold, it is nine degrees below freezing,' when we write it $+23^{\circ}\text{F.}$, or -8°C. , or -50°M.

"The air is temperate,' we write 50° to 59°F. ; or 10° to 15°C. ; and 100° to 150°M.

"It is warm,' we write 68° to 77°F. ; or 20° to 25°C. ; and 200° to 250°M.

"It is a very hot day,' we write 86° to 95°F. ; or 30° to 35°C. ; or 300° to 350°M.

"A hot bath' might be 104°F. , or 40°C. , or 400°M.

The following temperatures may occur in various illnesses, say between 95° and 110°F. , and it will be seen at a glance that while the Fahrenheit and centigrade scales must often express the intermediate readings in fractions, the milligrade can almost always employ whole numbers for its records.

Temperatures in Illness.

" Fahrenheit.	Centigrade.	Milligrade.
95-0°	35°	350°
96-8	36	360
98-6	37	370
100-4	38	380
102-2	39	390
104-0	40	400
106-8	41	410
107-6	42	420
109-4	43	430

"So, since there is to be an international medical congress at Rome in September, 1893, might we not venture to present these tables to the medical men there assembled, and invite them to consider the advisability of adopting the milligrade scale originally recommended for a thermometer by Galileo, the great Italian philosopher?"

Ureteritis Membranacea.—Professor von Jaksch (*Ztschr. f. klin. Med.*, xxii, 6) records a case characterized by the passage in the urine of formed casts, composed of fibrin and mucin, very similar to those described by Leyden and Curschmann from the bronchi, and by Nothnagel and others in the feces in so-called colica mucosa. The patient, a woman of forty-five, was admitted into von Jaksch's clinic over two years ago. Seven years previously she began to suffer from pain in the back and region of the right kidney, after the cessation of which, pain set in the left loin. This continued for a long time, sometimes with vomiting. Two years later a small calculus was passed with severe left renal colic. Some relief followed; but attacks of colic, vomit, muddy urine, and painful micturition occurred at intervals, accompanied occasionally by rigors and fever. Examination of the patient showed all the systems normal, except the urinary, and there was no tumor or swelling in the abdomen. The urine, with a neutral reaction, contained some albumin and showed a dull whitish sediment, which consisted of ribbon-like structures about ten centimetres long, translucent, spirally arranged, and unbranched. They varied little in breadth and resembled very closely to the naked eye the appearance met with in the sputum and feces, and this resemblance was carried further in that they consisted chemically of mucin and fibrin. Microscopically, they were like Curschmann's spirals without the central thread. On the surface were seen flattened epithelium, singly and in groups, such as is found in the bladder and ureter, amorphous masses, and crystals of sulphate of calcium. Throughout the sediment were scattered amorphous masses composed of carbonate of calcium, very fine crystals of triple phosphate, well-formed sulphate-of-calcium crystals, and epithelium from the ureter and bladder. Neither cells from the renal tubes nor leucocytes were to be found. With rest in bed the pain in the renal region disappeared and the condition of the urine changed in a few

days, the spiral formations ceasing and the crystalline forms becoming less. Sulphuric-acid lemonade was administered, and under its use the urine became acid, and the patient was discharged in a few days much improved. According to the history and the appearances observed in hospital, the case was one of renal calculus. The ribbon-like structures, from their length and breadth, the unbranched condition, and the form of the epithelium, evidently originated in the ureters and probably depended upon the state of lithiasis. Von Jaksch remarks that these forms give one the impression that all mucous membranes might produce them under certain conditions. Above all, certain chronic states of irritation of the mucous membrane favor their origin. They are found in the alkaline sputum and alkaline feces, and in the urine so long as it reacted neutral or weakly alkaline. Therefore an alkaline state of the secretions appears necessary, and it is supported by the rapid disappearance of the structures on the urine becoming acid. Von Jaksch proposes for the affection the name of ureteritis membranacea.—*Practitioner.*

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

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Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

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Original Communications.

THE MEDICO-LEGAL ASPECTS OF FRACTURES OF THE BONES OF THE EXTREMITIES, AND OTHERS, FROM A CONSIDERATION OF THEIR ÆTIOLOGY, DIAGNOSIS, PROGNOSIS, AND TREATMENT.*

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THE disorganization of bone from traumatic influence or fracture belongs to that category of what may be designated serious surgical lesions. Of all others of the latter class, these are by all odds the most common.

Every practitioner of the healing art sees them, and nearly all are assumed to be competent to properly treat the simple types. No age, sex, or condition escapes them. In varying degrees, according to the age of the patient, general health, and character of the lesion, they always leave a defective limb.

In early life Nature effects her work of repair so perfectly in many, when appropriate treatment is instituted, that the patient, after adult years are attained, is scarcely conscious of any impediment in function or diminution in strength in the former injured limb; hence it is only when it is put on a severe, protracted strain, in the event of sudden changes in the weather, or as one advances into old age, that he is reminded, by a sense of weakness, twinges of pain, and a tender point over the seat of injury, that the limb's integrity was ever damaged.

Many types of fractures in early life by the simplest description of treatment undergo prompt repair without any visible evidence of them remaining. Others, regardless of what measures may be instituted or skill and experience brought to bear in their management, never unite by an osseous isthmus, shortening or deformity of the limb always remaining. Although time and custom have sanctioned the division of fractures into two groups—the simple and compound—this is but an arbitrary arrangement, and tends to rather confuse than to elucidate, for all fractures are essentially compound or complicated. Not a few so-called simple fractures are more difficult to manage and cure without greater deformities than those designated compound.

It is not infrequently quite impossible to definitely diagnose fracture. Many of them extend into the articulations or are complicated with more or less luxation. As the union of fractured bone is effected by two distinct processes—by primary intention without a callus, or by extensive homologous cell proliferation with a provisional mass encircling the ends of the bones, in a considerable number as early as the second week—it may be quite impossible to say from any physical examination without the employment of considerable force whether or not the bone had been dissundered at all.

In a general way it can not be said that the antiseptic treatment of wounds has in any manner revolutionized or improved on the principles recognized for ages as most appropriate in the management of simple fractures; though since Listerism and cleanliness have been introduced, osteotomy has been more freely practiced for distortions of bone and non-union with better effects than before they became current with the profession.

Medico-legal Questions in their Relation to the Ætiology, Diagnosis, and Treatment of Fracture.—It might seem, on first thought, that a question of litigation or jurisprudence could scarcely enter into the consideration of the causation of a fracture; but there are many cases on record in which actions in civil and criminal suits have rested mainly on this feature alone.

The situation and extent of injury have not been disputed by the defense, but they denied their responsibility by alleging that "the plaintiff was injured in another manner than that represented by him or her."

Cases of this description are not uncommon.

The inducement, by a little deceptive circumsppection, with the unscrupulous, to turn an accident to good account often is very great. As individuals and corporations are almost wholly at the mercy of the surgeon in these cases, it behooves him under all circumstances, when he has the least suspicion, to examine the patient critically for surface lesions and demand from him a full and complete account of how the injury occurred. In many the physical examination alone will not decide the quality and extent of force sustained, whether it was direct or indirect, or whether the body came in contact with an object or he was struck by an object. When we remember that fracture in rare instances may ensue from muscular violence alone, we can then better appreciate the difficulties which beset us in many of these cases in which fraud is suspected. If the surgical attendant will debase his profession to deliberately support a criminal extortion, or is very discourteous to the defense, of course the way is blocked and the issue of the case must largely be left with the jury in deciding on the veracity of the plaintiff.

It is of prime importance in every case of fracture to investigate into the patient's general condition; or at least we can casually make note of it.

Is he deaf or near-sighted?

Is he rheumatic, gouty, syphilitic, or in greatly reduced general health?

Has he ever been injured before, and, if so, in the same limb and how many times?

Even an approximate determination as to the precise manner in which a fracture has been produced is occasionally extremely difficult to reach. It is certainly marvelous and often quite inexplicable how one may fall fifty feet or more and entirely escape, while another may fall one third the distance, or less, and sustain multiple and grave fractures.

But there are fractures which have quite absolute and unique histories of their own, which, when we are familiar with them, will not deceive us.

* Read before the Section in Medical Jurisprudence of the Pan-American Congress, September 7, 1893.

Fractures near the epiphysial end at the radiocarpal or the tibiotarsal articulation are usually the outcome of indirect violence. Fractures far removed above the joints are generally the outcome of force directly applied. This is notoriously the case in those of any part of the ulna or fibula shafts when complicated.

The diaphyseal center of the humerus, too, is seldom broken except by the application of direct force.

This generally holds good with the same anatomical structure of the femur.

Apophyseal fractures are, with rare exceptions, the result of indirect force.

The only exception to this general rule would be the elbow joint of the youth. The clavicle usually fractures in consequence of indirect violence.

The body of the scapula, the pelvic bones, the carpus, tarsus, metacarpal, metatarsal, and phalangeal bones fracture rarely, except through crushing force applied over them.

The late Professor Darling, of New York, used to say that one should recognize the ætiological factors in broken ribs by the direction which the fragments took after injury. He taught that when the vulnerable force was applied directly over the costal convexity the ends broken off must needs penetrate the pleura, and perchance damage the pulmonary organs underneath; but when the force was applied indirectly, as by antero-posterior pressure or by muscular action, then the respiratory organs would escape. As fractures of the skull constitute a unique and independent class of injuries which, in their physical qualities and clinical phenomena, present characteristics peculiar to themselves, they will not be embraced in this review.

Fractures of the spine possess no definite physical or clinical characteristics. A current impression prevails that a broken back—a fracture of the spine—is always a very grave injury, which necessarily must entail a permanent crippling; but this is erroneous, as has been repeatedly demonstrated, for it is only when the cord is simultaneously damaged that paralysis succeeds in consequence of the fracture.

Fractures of the spine follow direct and indirect force; the latter more frequently.

When they occur as a consequence of direct, concussive force, the consequences are more serious.

Fracture of the lingual or hyoid bone is an exceedingly rare lesion. I have never met with one in more than three thousand fracture cases. In modern times, since the rapid and enormous extension of the iron railroad, very many are crushed or maimed by vehicles which are rolled over them.

The fracture is more commonly compound when the wheels roll over the limb; but there are many exceptional cases in which the integuments are unbroken, yet the bone has sustained extensive shattering, the neural or vascular trunks being seriously damaged.

The extent of damage to the limb after having been run over by car wheels will depend on many factors directly connected with the patient, but more often on the weight of the car, whether a street car or a steam railroad

car, freight or passenger; whether or not it was loaded or empty; whether one or both wheels passed over the injured limb; and whether the car was in rapid or slow motion. So many cases have come under my observation in which one or both wheels have passed over a limb on a street railway without destroying its integrity, or even causing a fracture, that I am convinced that we certainly can no longer entertain the view that an accident of this description will always irretrievably destroy the limb. In all cases in which shamming is suspected we should carefully examine the clothing and look for abrasions, ecchymosis, or discoloration of the integument.

These accidents seldom occur except to young children, those physically incapacitated, or to the intoxicated.

Steam-railroad injuries of the limbs constitute, practically, a separate class of fractures. With these are two sets of symptoms, seldom associated with tramway accidents.

There is commonly bodily organic injury as well as the local disorganization. The former may quite overshadow the latter in importance and gravity. It is well, in all these cases, to determine the extent and degree of bodily injury present, if possible, at the first examination.

Another element of far-reaching importance is that of a psychological character; the element of fright, of nervous shock.

It has long been noticed that when those who are injured on railroads are employed on them, the extent of shock is not so great as when the same degree of traumatism is borne by a passenger or others. A limb run completely over by the car wheel on a steam railroad of a trunk line must inevitably sustain great damage, and in the vast majority of cases is completely destroyed.

I have no recollection of having ever seen a limb survive which has been rolled over by the wheel of one of these freight or passenger cars, though there are records of such injuries where the limb has escaped. (Dr. J. B. Murphy, of St. Paul, has reported such a case to me.)

It is almost needless to say that, in all this class of injuries, the fractures are compound. But it is well to note that the living integument is a very tough tissue, and hence in many, while there may be but a small opening in the integument, the inclosed bone and muscle are ground to a pulp, the main arterial trunks and nerves being completely torn through.

Fracture Dislocations.—The ætiology of fracture dislocations is generally definite and simple. With the exception of machinery accidents, they are seldom, if ever, induced except by indirect force; but at the elbow they more commonly are occasioned through violence, acting immediately over the seat of injury. The causative factors in a Colles's or a Pott's fracture are so well understood and so constant that we would regard with suspicion a fracture belonging to either of these in which it was alleged that it had been induced by a blow or by being run over.

We shall very rarely, if ever, induce a dislocation by any measures which we may employ in treating a fracture; but, unhappily, the converse is not the case. The humerus

is often fractured below the surgical neck in the effort to reduce a dislocation of the shoulder.

Two such accidents have occurred in my practice—one in a man and one in a woman. Many years ago I saw this accident happen in Bellevue Hospital while Frank Hamilton was assisting in the reduction of the joint.

In both of my cases the bones remained out of their sockets. No case has come to my knowledge in which a civil action has been brought for damages after this complication has followed. And it is difficult to conceive how ground for action could be reached when ordinary precautions are observed.

Fractures resulting from the Attempted Liberation of Ankylosed Joints.—All ankyloses of joints are attended with an atrophy of the muscles which act on them and the bone substance of the shafts on the proximal end of the immobilized joint. It is quite impossible, in many cases, to determine the nature, extent, or situation of the pathological conditions which cause the ankylosis. It may be osseous or ligamentous, or it may be caused by extensive adhesions between the muscle sheaths, degeneration, contracture, or shortening of all the flexor muscles. If the case is not most carefully studied, its pathology fully appreciated, and force skillfully and judiciously applied, damage may follow force. The femur has fractured once in my hands, while I was trying to break up an ankylosis of the knee joint.

In attempting the same procedure on two others, I have fractured both patellæ, much to the increased strength and power of motion of the limbs in both the latter cases.

In many types of knee-joint ankylosis this is a procedure which is rather valuable as a therapeutic measure than a source of ultimate detriment to the limb. In fracture of a shaft, unless every possible precaution was employed, particularly in liberating an ankylosed joint, were complications to follow the accident, the question of damages might be raised.

Forensic Consideration of the Etiology of Fracture.—On a superficial view of the subject, one might assume that the surgeon had performed his part and fully discharged his duties in a case of fracture when fair structural and functional restoration had been secured without deformity. As far as one's legal obligations are concerned, this view is correct. But in this country and in our times—when the sanctity of an oath is indifferently regarded, when perjury is rarely punished, and when so many maintain themselves by resort to sharp practices—it behooves the attendant, in the interest of justice and science, to examine with great caution every case of fracture or dislocation very critically in which he has the slightest suspicion of the perpetration of fraud. A designing person may, through a ruse, go through the farce of being injured. He may have had an old dislocation, an ununited fracture, or a deformity which may present many of the characters of an impacted fracture. Now, with a few well-coached pliant witnesses and the testimony of a reputable practitioner, the plaintiff is in a fair way for recovering heavy damages if neglect of an individual or corporation can be proved.

It is, then, of cardinal importance that the causation be

clearly established in every case of fracture which comes under our observation. But how can we determine the recency or proximate causes of a fracture in most cases?

Means for elucidating the Causation.—By a rigorous examination of our patient as to his general condition and the local condition of the parts. In every case of a fracture or dislocation, if seen within twenty-four hours, well-marked constitutional disturbances are generally present. As a general rule, with very few exceptions, in all cases of fracture of the long bone shafts or dislocation of the major articulations the body sustains simultaneously more or less shock; but should evidence of this be absent, or present in only a mild degree, phenomena of reactionary inflammation are present. There is immediately after injury a pallor of the features, the general integument is pale and anæmic, the pulse is weakened and quickened, and, if we observe the patient cautiously, we shall notice well-marked diminution in bodily strength.

On the day following the injury, constitutional symptoms are more marked and accentuated. Now we should find evidence of surgical fever, elevation of temperature with a full pulse, with an expression of the countenance which bespeaks bodily suffering. This latter in simple fracture is not always well defined.

Local Condition of the Parts.—The "age" of a fracture, whether recent or of long existence, can be definitely determined by a rigid local examination. The same will apply to dislocations. We will first note the state of integument, as to whether it is bruised or lacerated, whether we have evidence of sanguineous extravasation or tumefaction.

Abnormal mobility of the fragments with crepitation is unmistakable evidence of fracture.

Mobility in itself avails us but little information with respect to acuteness or chronicity of a fracture, for we may see it in an old fracture, and in the recent impacted type it may be wholly wanting; but *fracture crepitus* is an unerring monitor.

No tongue or pen can adequately describe the tangible qualities of this sensation. That harsh grating sensation which it transmits to the hand has no parallel in any other physical phenomenon whatever. It must be felt repeatedly to be fully appreciated; but when we are acquainted with it, it can never deceive us. In an old fracture or dislocation atrophic and arthropathic changes, when carefully sought for, will stamp the true character of the lesion. Difficulty is only encountered in very fat individuals, mostly females, in whom the joints and bone shafts are often covered in by dense layers of adipose tissue.

On the Manner in which a Fracture has been Sustained.—Has the bone been fractured by muscular action or extrinsic force, by direct or indirect violence?

A fracture of bone from muscular action alone can occur rarely, except when the elements of the bone are the seat of pathological changes—as cancer, or osteomalacia, etc. The only exception to this, perhaps, is in the case of the patella.

But, from my own observations, I am inclined to believe that this is a lesion rarely attributable to muscular action alone. In about thirty cases which have been treated

by me, in none was fracture wholly attributable to this cause, but rather to indirect violence.

A fracture of a shaft from muscular action I have never met with. In a general way we know that in the great majority of the most common types of fracture they have a definite etiology.

We know that Colles's fracture at the wrist and Pott's ankle fracture are always attributable to indirect force, as are also many fractures of the lower end of the tibia, while fractures of the femur, the fibula, and the ulna most commonly occur in consequence of direct violence. This is generally true, too, of those fractures which involve the upper third of the tibia or fibula, when separately fractured; the radius and ulna; and the humerus in any of its segments.

The shafts of bone are sometimes fractured *in utero*, we are informed; but this must be a very rare accident.

I have never seen such a case, or seen a report of one in the current literature of surgery within my recollection. Indeed, with the osseous structures yet in a cartilaginous condition until the fetus is fully developed, it is difficult to conceive of the possibility of such a lesion, except in the latter stages of pregnancy, when, should such a traumatism be borne by the uterus through violence applied over it as to cause fracture of a fetal bone, it seems inevitable that life itself must be seriously imperiled. It is very probable that such few cases as have been reported were those in which the bones were broken in their passage through the canal of emergence.

Fractures of the femur during delivery are not uncommon, but they almost invariably unite promptly and leave no trace of deformity.

Fracture of Bone in Mortal Injuries.—The question as to the precise date of fractures which have been found post mortem has occupied an important position in many medico-legal cases; but, as they pertain in the greater number of cases to skull injuries, an extensive consideration of them here is not necessary. Ogston (*Forensic Medicine*, p. 514) alleges that "the presence or absence of a blood-clot in a fracture detected post mortem is not of any definite value in determining whether a bone was fractured before or after death," and says that "the only real test is the presence of reparation processes," and that this only can the medical jurist rely on. He adds, though, that a clot found between the ends of the fractured shaft is decisive proof that it was of an ante-mortem character. In this, however, Casper does not concur. Devergie (*Médecine légale*, vol. ii, p. 101) tells us that every shaft of bone fractured completely after adult years are attained results in a diminution of the volume of the bone, which, in the living or the dead, is easily appreciable in thin subjects, but that in fat subjects, particularly women, this is not easily detected. In the absence of a well-defined callus, this, he says, is important to remember.

In considering this part on the etiology of fracture from a forensic standpoint it is well to always determine, if possible, by a thorough scrutiny into the patient's or subject's history, whether he had a predisposition to fracture, had a preternatural fragility of the bones.

On inquiry in fracture cases in my hospital service, very many instances have come to my knowledge in which the patient has previously fractured other bones of the skeleton. Many have come under my care in which the most trifling sort of force had broken the bone. Ogston (vol. ii, p. 210) cites the case of a carter who, in jumping from the shaft of his cart, fractured both of the femora in their centers. He mentions another case, which ended mortally, in which but a slight blow on the shoulder so shattered and shattered the head of the humerus and upper third of its shaft that the man succumbed to it. On autopsy, it was found that the bone was composed wholly of a friable compact tissue.

In all these cases, on examination, we should sedulously inquire into the patient's general condition, with a view of learning if he were in any way invalidated by a pre-existing local or constitutional infirmity—as ankylosis, the wearing of artificial limbs, rheumatism, or paralysis, or any other infirmity which would in any manner interfere with locomotion—as they must, each and all, be regarded as indirect but important factors in the etiology of many fractures and other injuries.

Diagnosis.—It is of fundamental importance that a correct diagnosis be reached, if possible, on the first visit. Many a medical attendant has come to grief through neglect to rigorously observe this rule.

It is true that there are often many obstacles in the way at one's first visit. First, the fracture, if recent and close to an articulation, may be of such a character as to defy detection; and if many hours have elapsed before it is seen, inflammatory changes with intumescence of the adjacent parts may be so great as to quite completely mask the indubitable symptoms. The bone may have been fractured transversely without any displacement, and the temporary muscular spasm, always present when reactionary inflammation has set in, holds the fragment in firm apposition. It may be said that, with many fractures, their recognition is indispensable rather from a medico-legal standpoint than with respect to treatment. Many fractures, from their situation, are extremely difficult to recognize without the aid of an anæsthetic and one or more assistants. This is particularly true of the proximal end of the femur and fractures which involve the elbow joint.

A fracture of the anatomical neck of the humerus may be mistaken for a dislocation if great care is not exercised. There are types of luxation and subluxation of the radio-carpal articulation which, on superficial examination, present some of the characters of fracture, and *vice versa*. Secondly, we may encounter impediments from the patient and environment. The patient, if a woman, may, through a sense of modesty, be reluctant to permit the medical attendant to expose her in his examination. She may allege that she has but a *sprain*, and that such examination is not necessary. Her word may be confidently taken, and an examination not insisted on.

Such a case occurred in New York very recently.

The patient, an actress, had been kicked by her husband in an altercation, the blows falling on the leg and knee joint. Very great pain following, a neighboring physician was called

in, who examined her limb under her garments. He prescribed a liniment and made light of the case.

Later another physician was called, who detected a fracture of the patella, with some inches of separation of the fragments. I was invited in to verify the diagnosis. A civil action was instituted against the first medical attendant, and a verdict was found for the plaintiff.

One may be called late in the night far away from associate medical aid, or to one wholly unable to pay the expenses of a consultation. Our patient may be hypersensitive, intoxicated, boisterous, or unmanageable. But the law holds us equally responsible for all. In large cities and populous towns there is some relief for us in these cases by sending them to the hospital; but in small villages and scattered country sections we generally can not shift the responsibility. Most of our mistakes in diagnosis arise from haste or an imperfect knowledge of the anatomical and physical qualities of fracture.

A few years ago a vigorous young laborer came to me to attend him for a fractured clavicle. He had a few hours before been at one of our most noted dispensaries, and the shoulder was already firmly adjusted by a modified Sayre's dressing and enveloped in several deep layers of a copious dressing. But he had great pain and demanded a redressing. I sent him back to the dispensary from whence he came, reminding him that most public dispensaries are schools for instruction, and that what he got for nothing must be generally valued accordingly.

In a little while he returned again, begging me to examine the distracted joint. He had been at the dispensary; but besides a nicking of the edges of the dressing with a scissors, nothing had been done. On removal of all the dressings I discovered no injury of any description.

We can well imagine the consequences to a healthy limb and articulation in such a harness for six or eight weeks.

An elderly woman went marketing one winter's night, slipped on the curbstone of a sidewalk, and was unable to rise. An ambulance was called and she was entered into the surgical ward of one of our principal hospitals. The house staff, wearied after a heavy afternoon clinic, made a hurried examination, pronounced her case one of fracture of the head of the femur, and put the limb up in a Buck's extension apparatus. She was informed that she must keep the bed for six or eight weeks, and that she would be lame for the remainder of her life.

Her friends sought her out and, in spite of the protests of the doctors, brought her home the same night. At about midnight I was called, and, on examination, discovered that there was no fracture of any kind, but a dislocation backward of the head of the femur on the *dorsum ilii*. With the employment of a strong clothesline and three strong young men boarders whom she had, I was able to readily reduce the displaced bone. In two weeks she was about as usual with scarcely a perceptible limp.

In doubtful cases of fracture we should always insist on a consultation, or advise the patient of our doubts. Then, should deformity occur, we are not responsible for it or the error through which it exists.

Surgeons and practitioners are sometimes called in after a case has been under the care of another practitioner, and in which, possibly, it may be alleged that there was no fracture, but that the practitioner had tried to "make a

case" of it, with a view of extorting a fee or aiding the patient to secure damages for a spurious injury.

In this connection it is important to inquire if there were any physical evidences during life by which we could determine whether or not there has been a fracture sustained, when we can only examine the limb at some distant date after the alleged injury.

In the case of the fracture of the femur or humerus in an adult it is my conviction that imposition is quite impossible. In any simple fracture in a growing child, or one which involves the tibia, fibula, radius, or ulna of an adult after the first week, there are no means known to art by which we can determine this question with definite certainty. It has long been known that bones, like the soft parts, unite by two processes—one known as *primary union*, and the other by *secondary union*. In the latter we always find a callus; in the former not necessarily. This I have repeatedly demonstrated in my own fracture cases in and out of hospital.

Within the past year a case came under my observation in which a gentleman had injured his right leg, and this question arose. He had been injured nine days before I saw him. At this the attending physician called in one of our best-known surgeons, and it was agreed that he had fractured his right tibia in the lower third. At my request, the plaster dressings were removed, in order that I might examine the bare, unencumbered limb. The patient persistently protested that he had no fracture. I could certainly discover no evidences of any.

But I, nevertheless, knowing the respectable character of the previous attendant, besides bearing in mind those occasional cases of primary union and practically *non-callosed* fractures, advised the family that there had been a fracture, and recommended the removal of the heavy gypsum case, now rendered unnecessary. Indeed, in simple fracture cases in the young and vigorous, in the event of a litigation over a case, the defendant is quite at the mercy of the medical attendant. Therefore the practitioner who would uphold the honor of his profession and refuse to be an accomplice to a crime must exercise great caution that he does not prematurely designate a sprain a fracture, and thus work a very serious injury against an innocent party, and strike at the very foundations of civilized society by compounding a felony. It is a humiliating admission to make, but justice demands that one's experience should be made known, and hence I must confess that, of late years, many cases of alleged fractures and other injuries have come to my knowledge in which no bodily traumatism of any kind had been borne, but the cases had been "worked up" for the purpose of extorting money. These accident insurance companies and tontine societies are a great inducement to dishonesty and extortionate practices.

A case came to my knowledge within the past winter (1893) in which a physician was approached by a gentleman who had been his former patient, and informed him that he was carrying an accident policy which would pay him fifty dollars a week, in the event of accident, for ten weeks, adding that he was then in straitened circumstances, and had the audacity to ask the doctor if, for a consideration of fifty dollars, he would splint his arm and treat him for a pretended fracture of it, so

that he might raise some money from the company on a medical certificate.

Diagnosis of Complications attending Fracture.—It is well to remember that in most fractures resulting from violence, simultaneously with the bone disorganization, there is severe bodily shock with possibly other structural or organic lesions resulting from the same influences.

This is particularly true of railroad and machinery injuries. There may be a dislocation with the fracture, or there may be fracture of other bones, notably of the skull or ribs.

In recent times spinal shock or concussion of the spine is not unfrequently said to attend as a complication of fracture. In all those serious cases, in the interest of all parties, it is an imperative duty that a minute scrutiny of the entire body is made at the primary examination, or as soon as the patient is in a condition to safely bear it.

Prognosis.—A clear conception of the causes of a fracture, with a comprehensive knowledge of its type or character, opens the way to a reasonably safe prediction as to immediate and remote results.

Very often, when called to attend one suffering from a broken bone, we are persistently importuned by the relatives or friends of the patient for an opinion or an assurance as to the ultimate utility of the limb after treatment is ended. Here we must exercise great tact not to compromise ourselves by too optimistic promises, nor, on the contrary, by too somber insinuations, unduly discourage or alarm.

To commit the former would be to leave us open to severe censure or a prosecution in the event of disappointment; and the latter might cause us the loss of the case, very much to the detriment of one doing a village or country practice. The succeeding practitioner, though perhaps fully realizing the serious character of the injury, would inspire his patient and those about him with hope, and yet hedge in such a way as to escape criticism, when, though the limb were defective, the patient and his friend would be ready to swear it was perfect.

Every one, from the meaneast to the highest, in this world, under ordinary circumstances, by an instinctive impulse, will invariably endeavor to minimize or conceal his infirmities, and the fractured invalid is no exception.

An intimate familiarity with the clinical history and sequelæ of each individual case will usually warrant us in venturing an opinion after the fracture has been definitely recognized. We will be guarded in the main by the age of the patient, the condition of general health, the nature and situation of the lesion, the absence or presence of complications, the facilities for treatment, etc.

But in no case can an absolute opinion be vouchsafed, inasmuch as we know nothing about our patient's peculiarities; for a bone may fail to unite, the soft parts will not bear protracted pressure, and ankylosis, shortening, deflection, wasting, gangrene, or persistent weakening in the limb may follow. These are unusual but possible sequelæ even in the hands of the most experienced.

No one will be rash enough to promise anything approaching perfect functional or structural restoration in a

fracture which involves an articulation—one opening into the elbow joint, an intracapsular fracture at the hip joint, a Pott's, a Colles's, of the ankle or wrist joints—nor will he forget to remind his patient of a probable shortening in any type of complete femoral fracture at any age.

But we may say, in all cases of fracture of every description, that a defective limb will always follow any line of treatment. This we may always maintain from the fact that normal histological bone, once destroyed by either disease or trauma, is never reproduced; that the substitute which Nature provides for repair, while fulfilling in a large measure the function of the damaged bone shaft, is yet but a species of ossified cicatricial tissue, without the vitality, strength, or resiliency of what it has replaced. We may add, too, that the younger the patient the better the prospects of functional restoration; while, on the contrary, at or past the meridian of life, anything like perfect restitution is out of the question, and permanent weakness must remain in varying degrees.

Treatment.—The surgical therapy of fracture has been the rock which has wrecked many an unfortunate practitioner.

In past years, in the United States, a considerable number entered at once into active general practice with little or no practical experience in dealing with injuries. Clinical knowledge was not an essential requirement for a medical degree, and hence, when the surgical tyro was called to his first case of a seriously complicated fracture, very naturally his patient's escape from death, the loss of his limb, or a deformity, might be attributed to good luck as much as to the skill and experience of the medical attendant.

The law does not expect impossibilities, but it does demand of those who practice the healing art as general practitioners that they possess a reasonable knowledge of the principles which underlie it and their application; that one is acquainted with the plan of treatment called for in those cases which he assumes to manage. Of the specialist in any line of practice, whose fees are larger, much more is demanded, and his responsibility is proportionately greater.

Very naturally, when one has confided the management of his shattered, distorted limb to our care, it is presupposed that he authorizes us, as far as is within our power, to provide every possible resource of art and science to restore the usefulness of the limb.

Therefore, as many complicated and serious fractures possess unique and peculiar features, as a preliminary step of cardinal importance, in all of these cases a consultation should be insisted on.

When this is not practicable to be had with an experienced surgeon, then the most skilled general practitioner should be invited in for assistance. But should the family or friends demur to a consultation, decline to bear its expense, or for other reasons a consultation can not be had, then the attendant should have it clearly understood that the responsibility of failure in treatment must rest with his patient and friends, when he is, in a measure, relieved of any further embarrassment.

But in some places at the present time in the United States there are many and important reasons why a consultation should be discouraged in almost any event. In certain localities and States a consultant is permitted to continue his visits as often as the medical attendant requires it, or it is desired by the patient or deemed necessary by himself. This vicious clause opened the way to professional piracy and left the family physician at the mercy of the consultant. And hence of late years, in the city of New York and other places, many have not failed to take advantage of the amended code, or no code, to firmly intrench themselves and tenaciously continue their visits until the first physician is ousted.

The last thirty years has witnessed a revolution in the treatment of fractured limbs, and accordingly what were laid down as orthodox measures in the recent past will not hold now, though it must be admitted that the fundamental principles of fracture therapy yet remain. Change has been rather in the direction of detail than the adoption of new principles. Tenotomy, the extended posture with traction weights, the gypsum dressings, resection of bone as a substitute for primary amputation, all belong to modern times, none of which would have been possible without the inventions and discoveries of which these were the legitimate outcome. Accordingly, it might be fairly asked if the physician had done full justice to his patients who had not utilized all the materials and facilities which modern science has rendered accessible.

Right here is where the difficulties arise; for it might be inquired, Have all those innovations in fracture treatment been an advance over measures formerly in vogue?

It is perfectly rational to inquire if it is a prudent plan to fix a fractured limb in any sort of immovable dressing immediately after injury.

Is the extended position with weights, or not, a gain over postural treatment—muscular relaxation with flexion?

Is plaster of Paris in a general way more conducive to simplicity of treatment than the older custom of segmented splinting?

Is tenotomy a measure which may be generally adopted in cases of extreme rigidity with overriding of the fragments?

Considerable difference of opinion prevails among the most eminent authorities at the present day on these questions, which is an evidence that none of them carry the force of dogma. It is one's experience to now and then be called to a case in which for many reasons it is inexpedient to invite in a consultant. The patient injured is in no great pain, but it is quite impossible to say whether there is a fracture or not. Under these circumstances, what should be our course of action? Or, should we encounter a case in which, on consultation, no unanimity of opinion can be reached, what should be our line of conduct?

In the former, our interests will be better guarded by always applying some sort of temporary adjustment and watching the case until time will decide. In the latter, the opinion of the majority should prevail, if there be a third party; at the same time the injured and relatives should be candidly informed of the difference of opinion.

Many practitioners have come to trouble by overconfidence in their own capacity and knowledge or by an unskillful, imperfect, or hasty examination. The classical symptoms of fracture are wanting; the hypersensitive patient resists forcible manipulations, without which the definite recognition of certain fractures at certain times is utterly impossible.

The patient will vehemently proclaim that he has no fracture because "he can move his fingers or toes." A simple lotion is perhaps prescribed and the case dismissed. Possibly nothing more is heard from it until the first medical attendant is served a notice for a suit, when abundant expert and other testimony is forthcoming to incriminate him for the neglect through which the patient suffered in consequence of unnecessary pain by protracted treatment, or perhaps now he has a deformed limb.

Malpractice essentially consists of two phases: (1) *The passive, in which one's course is not sustained by general authority.* (2) *When those measures in treatment are omitted which might have approximated to perfection in results.*

Very naturally, those fractures which lie close to or involve the joints and those which engage the major shafts are the class which most often are attended with unsatisfactory results, and hence are the subject of malpractice suits. Fractures, when improperly treated or when they occur in those of unsound health, may terminate in (a) non-union, (b) deformity, (c) ankylosis, (d) muscular atrophy, (e) shortening, or (f) gangrene.

Non-union.—There are no means known to art by which we can predict non-union or prevent it in many cases, hence we can not be censured for failure of union when our treatment has been on the right lines.

Deformity.—While, as a rule, particularly in the young, deformity can and should be prevented, in the adult, in certain types of fracture, its suppression is often quite impossible.

Ankylosis.—Muscular ankylosis is a general sequence of all fractures and shortly disappears. Arthritic ankylosis is the phase which most commonly disables the injured and leads to lawsuits. It is well to bear in mind that in the most aggravated types of this the use of the limb and time mainly overcome it—more so, it is true, in certain joints than in others.

Muscular Atrophy.—Atrophic changes in the soft parts follow all fractures; but it is only when muscular wasting is persistent and permanent that complaint is heard. However, it must be a very unusual event as a permanent condition, as I have never seen a case of that trophic disintegration of muscle mentioned in the text-books. As acute temporary atrophy is always a curable affection after fracture, it is quite inconceivable how its presence can be made the pretext for litigation.

Shortening.—Moderate shortening is a usual event in many fractures, hence it is only when the reduction in length is excessive that it can afford a pretext for damages; and even then, with young, restive patients, or those ungovernable to treatment, no fault can attach to the medical attendant.

Gangrene.—But few cases of gangrene have come under

my care in fracture cases—five, as nearly as I can remember, in all. It must be admitted that they all occurred through too tight bandaging. With the exception of one, they occurred under the gypsum bandage.

In all these the limb had to be sacrificed. This is an accident, fortunately, which, while the most deplorable, is the most rare. My impression is that a limb is almost never lost in a simple fracture from gangrene or asphyxiation of the tissue except through ignorance or carelessness on the part of the medical attendant.

In considering the treatment of fracture from a forensic standpoint, a regional division of the body may somewhat simplify our work.

THE UPPER EXTREMITIES.

Shoulder Joint.—Fractures which involve the anatomical neck of the humerus have been mistaken for dislocation; the epiphyseal disc sinks under the deltoid and the shaft is greatly displaced by muscular action.

A violent blow on the shoulder may paralyze the arm, occasion a fracture or dislocation. Only a most careful examination will always enable us to distinguish them.

In any event, if we are in doubt a consultation should be requested and an adjustment applied.

Civil actions seldom arise in consequence of fracture through the center of the humeral shaft, but as we approach the insertion of the digital muscles and the condyloid ridges the case is different.

Elbow Joint.—As the elbow joint is a complicated articulation, any fracture which extends through the condyles and opens the humero-ulnar articulation may be serious in its consequences as far as the future flexibility and strength of the joint are concerned.

A wide difference of opinion yet prevails in the details of treatment of this lesion, so that there remains a wide loophole for escape in the event of suit. Some authors recommend the straight position, the arm extended; others want it flexed, or would have motion begun early; others only after union is effected.

Wrist Joint.—As fractures which occupy the middle of the shafts of the radius and ulna usually unite well under ordinary treatment, with the application of general principles, those which sunder the bone near the radio-carpal articulation may be now considered.

It can not be said that there is a very wide diversity of opinion on the treatment of a typical Colles fracture, probably for the reason that, in spite of any line of treatment adopted, more or less impairment in motion, deformity, and ankylosis remains.

This was my position in an essay last October before the New York State Medical Association; but issue was taken with me, and some went so far as to affirm that by an appropriate therapy good results should be always secured.

Valentine Mott, writing twenty-five years ago on this subject, said, in a communication which was used as testimony in court in a malpractice case (McClelland, *Malpractice*, page 203): "Fractures of the radius anywhere from two or three inches of the wrist joint, even when treated

by eminent surgeons, are often very difficult of management so as to avoid deformity; indeed, more or less deformity may occur under the treatment of the most eminent." Nevertheless, of all joints in the body, there is none, perhaps, in which good or indifferent results are dependent more on treatment in fracture than this. Not that we can make it perfect, but appropriate treatment will avert many unpleasant consequences.

LOWER EXTREMITY.

Fractures, Intracapsular and Extracapsular, in the Hip Joint.—Intracapsular fractures at the hip, as they mostly occur in the old and seldom unite, are not often the subject of civil actions for malpractice. The fragments rarely unite, not because there is any good anatomical reason for failure in this direction, but because it is impossible to rigidly confine the patient in the dorsal decubitus.

Extracapsular fractures are uncommon at the hip and are usually amenable to ordinary treatment.

The battle ground has been in cases of the shaft of the femur. The femur is a difficult bone to manage in fracture. Its powerful muscular envelopes hold the distal fragment in a vicious grip, which is only overcome when dangerous pressure is exercised on the soft parts. Can we secure union here without shortening? Mott again speaks on the subject (*loc. cit.*) in the same case, and says that "more or less shortening is uniformly the result after fracture of the thigh under the most fortunate circumstances." On the same occasion the late Dr. Alfred C. Post stated that the injury of the soft parts would interfere with extension of the limb, and that he had personal knowledge of two cases in which the attempt to make extension and counterextension resulted in mortification and the thighs had to be amputated.

Of late years fracture of the femur has been chiefly treated either by the gypsum cast or by extension, in the United States. Dr. Lewis A. Sayre was a warm partisan of the plaster dressing, alleging almost uniform good results without shortening. He lays the laws down as to the principles of extension, fixation, etc., which are all very well in theory and long known as of fundamental importance in surgery, but which are utterly impracticable in the majority of cases. Dr. Frederick Hyde reported three hundred and eight cases of fracture of the femur, which were treated in Bellevue Hospital from 1868 to 1873, inclusive, in which the average shortening in all cases (the perfect and others) was half an inch.

In the years 1872 and 1873 the late Dr. Frank Hamilton and Dr. Lewis A. Sayre reported their results separately, Sayre employing plaster dressing with almost no shortening, if any. Hamilton's cases were treated with Buck's extension. He confessed to having shortening as a rule. Sayre's tables bear the traces of an enthusiast, for in the column of results there is an apparent evasiveness of detail as to deformity or shortening, while the successes are submitted in detail. (A record of fractures treated at Bellevue Hospital with the plaster apparatus from April, 1871, to April, 1872.)

Dr. Hamilton's tables of results in fracture treatment, revised and completed by McClelland, presented to the

American Medical Association in 1856, though a unique and exhaustive *résumé* of the subject, are of little or no statistical value, for the reason that they are drawn from widely scattered sources and necessarily inaccurate because "of the difference of interpretation in analyzing results." For instance, one author may affirm that he has a perfect result after the fracture of a femoral shaft if his patient showed no lameness. On the contrary, another would fail to realize perfection unless full length were restored. Now, Velpeau taught that there was never any limping when the shortening did not exceed three quarters of an inch (*Leçons sur les fractures*, p. 211).

Liston said that it should be borne in mind that there had been fractured limbs released from splinting at the proper time, of the proper length, free from deformity, which had, nevertheless, soon become bent and shortened (Liston's *Elements of Surgery*, p. 555).

It may then be laid down as a rule that shortening is the common result after fracture of the femoral shaft, and that full restoration of length is the rare exception.

Fracture at the Ankle Joint.—Simple fracture of the tibia or fibula, or both, is of common occurrence; and except in unusual instances, from censurable neglect generally, does not become the subject of malpractice suits. But those oblique fractures in the lower third of the tibia, and that type designated "Pott's," are difficult to treat, and are often followed by deformity and defective joint action, regardless as to how they are managed. I have never seen a genuine Pott's fracture so treated but some deformity remained.

Percival Pott himself, as well as Dupuytren, both distinguished authorities on fracture, regarded fracture of the internal malleolus with fracture at the lower third of the fibula and extensive laceration of ligament and tendon, and dislocation, as always a very serious affair.

Certainly in this, as in all other types of fracture, as a general rule, results will be commensurate with the skilled attention bestowed.

The Question of Dressings and Mechanical Adjustment.

—Of late years a considerable number of practitioners have had to sustain malpractice suits in which the dominant question at issue has had reference to the materials employed and the time at which definite adjustment was made. Since the introduction of plaster of Paris the treatment of fracture has undergone a revolution. That it has greatly simplified its treatment goes without saying; but that its employment is safe and the results are as good as treatment by the older methods is not by any means yet settled. My own experience entirely coincides with that of a modern author, and I am in entire accord with his views. McClelland (*Malpractice Suits*, p. 176) says that "plaster of Paris as a primary dressing requires large experience, inasmuch as it is likely to be followed by the same bad results that so frequently follow the use of the 'primary' or 'initial bandage.' It is not yet the *sine qua non* so long and anxiously looked for by surgeons in the treatment of fracture. The other forms of so-called immovable dressings are just as objectionable for the same reasons. As a secondary dressing, after the primary are removed, and as

a dressing for compound fracture, it is highly satisfactory; and for hospital practice, where it can be seen every few moments and be under the eye of the house surgeon or a nurse familiar with these injuries, it may be employed with good results. The surgeon who applies it to his patient ten or twelve miles away does so at great peril to his patient and himself."

Dr. Lewis A. Sayre and others were warm advocates of *primary* plaster dressings. In my own time of internship, in 1875 and 1876, it was the routine practice to envelop the freshly fractured bone at once on the patient's entrance in wet plaster bandages.

It was a vicious, cruel, and destructive practice; but it was all the rage, and he who neglected to employ it was an "old fogey" or was not up in *progress* (?).

But gangrene so commonly followed ankylosis, shortening, and deformity, that its primary employment is generally discarded now, though it died hard before surgeons would open their eyes to its dangers.

Plaster of Paris brought with it a change in the attitude of the limb, and introduced a new principle of treatment in fracture. With its employment the limb must be extended and the joints locked immovably. The principle of muscular relaxation and postural methods were necessarily cast aside. The old-time fracture box was thrown out as a relic of barbarism. But with these innovations in simple fracture treatment it yet remains an open question whether they have constituted real progress or not. Every individual case of fracture constitutes an entity in itself; therefore to attempt to generalize any form of treatment as applicable to all is worse than folly.

Hence, with the exception of very aggravated and unusual cases, no blame should attach in a given case because certain special details in treatment were not carried out by the medical attendant.

The treatment of fracture in respect to the time of "setting" the bone has been radically changed of late years. In the beginning of the present century and for some time after, it was the common custom to delay splinting the limb for some few days after fracture.

John Hunter taught that splints should not be applied until after all inflammation had subsided (Hunter's *Surgical Lessons*, p. 177), while Chelius advised primary fixed dressing only for oblique fractures and those which involve the collar bone, and directed that for the first three or four days nothing should be done except to lay the limb on a pillow in such a position as will give the patient the greatest ease and soothe the irritable muscles (Chelius, p. 555).

I have recently set forth in an article entitled *At what Date should Permanent Dressing be applied after Fracture?* *Practice*, Richmond, Va., April, 1893, my views on this question, and cited cases which have come to my knowledge in which suits for malpractice have been instituted—in one set in which it was alleged that permanent fixtures had been applied too early, in another in which judgment had been given because the medical attendant had been too tardy in applying rigid fixtures.

The fact is that at the present time the tendency is to

apply permanent fixtures too indiscriminately as a primary measure.

Indeed, there can be scarcely a doubt but that the most disastrous consequences we ever see in fracture most often ensue from rigid, unyielding dressings over the freshly mutilated parts.

It is better, then, to err on the side of safety; wait until the circulation is re-established and all violent inflammatory reaction is passed; then so adjust the limb that the patient will secure the greatest comfort with the best promise of good results. If the doctrine of rigid immobilization would hold, there might be some justification for the immediate adjustment in a permanent fixture of all simple fractures. But it will not, for any one of experience knows that moderate intermittent motion in a fractured limb often rather favors than hinders osseous consolidation.

It is a moot question among many of our most eminent authorities whether, in many types of fracture, any sort of splinting is ever of any service—as in intracapsular at the hip joint and impacted Colles's fracture in old people. From a forensic standpoint it must necessarily be an extremely difficult question to answer in many instances as to just what is the most judicious line of treatment to adopt, which is censurable or which is not, particularly when one must decide without having seen the case, when acting as an expert.

Treatment in Compound Fractures.—So great and rapid have been the advances in the treatment of compound fracture within the last two decades that, when properly managed, now many lives and limbs are spared which were formerly sacrificed, distortions obviated, inflammation, necrosis, tetanus, and mortification prevented. Painless and aseptic skillful manipulation of mangled parts, a more intimate knowledge of pathological changes, with the mechanical aids and perfected dressings at our command, have each and all contributed toward bringing the treatment of compound fractures to well-nigh a state of perfection.

Any tyro of common sense may treat a simple fracture. Handy old men have been efficient "bone setters," but for the intelligent management of compound fractures at the present day special skill is imperative.

Many a smashed, temporarily asphyxiated limb, which in years gone by would be promptly condemned to the amputating knife, must now be saved.

The medical attendant should not only be familiar with all the principles of treatment of these cases in modern times, but he should also be ready to do such osteoplastic operations as the case may require during the progress of repair. To do anything less is an injustice to one's patient, and leaves one open to a civil action.

Statistics tell us that the mortality in the treatment of compound fractures under modern methods has fallen from sixty to less than five per cent.

It may be added that the proportion of limbs spared and made useful is equally large. And along with all this, one of the most salutary and beneficent features is the enormous diminution of human suffering.

The responsibilities of the surgeon in serious com-

pound fractures are always great; therefore, to do full justice to his patient and protect himself, he must redouble his vigilance and throw around his patient and himself such safeguards as will redound to the welfare of both. In the foregoing notes extensive reference to the historical part of the subject has been purposely omitted, my aim having been rather to present what would seem to be the safest lines on which the whole subject of fracture should be regarded when the question of malpractice may arise, and the means which one should employ to protect himself in all cases of this description.

There are fractures of many other bones of the body which often entail lawsuits, particularly those of the skull, clavicle, and ribs, but in the present brief notes it was found impracticable to incorporate them.

Members of our profession, as a rule, should discourage as far as possible suits for malpractice. Without the connivance or encouragement of practitioners their successful prosecution is rarely possible. So that, unless a case presents evidence of positive criminal carelessness or total want of skill, we should not give them our support.

Medical Practice in Belgium.—"By a recent decision of the Belgian Government the applications of foreign medical men desiring to practice in Belgium will first be referred to a special committee to ascertain whether the applicants' scientific attainments are such as to justify the Government in conferring this privilege upon them. This is as it should be, and it would be a wise thing on the part of the French Government if they would exercise a like liberality. The United States boards of health should all of them be vested with like power to discriminate against the hordes of medical pretenders who are flocking to our shores from foreign lands. The Illinois State Board of Health has been dealing efficiently and with measurable success with such incompetent men, and the corresponding boards in all the States would show their wisdom by doing likewise. The action of Belgium is timely and in the right direction."—*North American Practitioner*.

Antidote to Hydrocyanic Acid.—"Since hydrocyanic acid is oxidized to oxamide by hydrogen peroxide, experiments were made by P. Krohl to see if the latter substance could be employed as an antidote in the case of hydrocyanic-acid poisoning. These experiments are reported as successful, the acid, in larger quantity than the fatal dose, having been administered to dogs and cats, and its effects stayed by means of hydrogen peroxide. The experiment could be made daily for weeks together without permanently injuring the animal."—*Druggist's Circular and Chemical Gazette*.

Hydrogen Sulphide as a Poison.—"Lehmann has established by an elaborate investigation that the inhalation of 0.07 to 0.08 per cent. of hydrogen sulphide in the atmosphere produces in the course of a few hours very dangerous symptoms, the presence of 0.1 to 0.15 per cent. causing death quite rapidly; 0.015 per cent. in the air can be inhaled for some hours without detriment, but more than 0.02 per cent. produces injurious effects. The system can not be made to tolerate this gas; on the contrary, it becomes more sensitive upon repeated inhalations. Uchinsky could not find any evidence that the gas acts as a hypnotic, as Schulz states."—*Druggist's Circular and Chemical Gazette*.

Formanilide.—"This newly brought out substance is recommended as being possessed of analgesic and antipyretic properties analogous to those of antipyrine and acetanilide. It occurs in the form of long, flattened, four-sided prisms; melts at 46° C., is readily soluble in alcohol, and somewhat less so in water. A three-per-cent. solution injected subcutaneously produces anesthesia. A twenty-per-cent. solution produces upon the tongue a strong biting sensation at first and then a long-continued numbness. When dusted upon bleeding wounds, formanilide is said to be a much more powerful hemostatic than antipyrine."—*Druggist's Circular and Chemical Gazette*.

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THE FIRST PAN-AMERICAN MEDICAL CONGRESS.

At the time of our going to press, three of the four days appointed for the sessions of the First Pan-American Medical Congress have passed, and, so far as the reports received at this office enable us to judge, they have been well spent. We feel that we need make no apology for devoting so much space as we do in this issue to an account of the general meeting, deferring our reports of the section work. We give Dr. Pepper's address as president of the congress in full; to condense it or paraphrase it would be to mutilate it. We feel sure that every physician whom this number of the *Journal* reaches will read the address with satisfaction.

It is well that the countries of the Western Hemisphere, among which there is no longer a monarchy, should approach nearer and nearer to community of interest and aspiration. To the accomplishment of such an end nothing could be more conducive than their forming a closer acquaintance with each other, and no initiative in that direction could be more promising than one taken by the medical profession—a profession proverbial for its fraternal spirit. The Washington assemblage of physicians from all parts of North America, Central America, South America, the West Indies, and the Hawaiian Islands may prove more far-reaching for good than would be imagined by one who viewed it simply as part of the machinery in a discussion of medical matters. Our professional brethren who are visiting us from other countries have been attracted hither, we presume to think, quite as much by a desire to come into close personal contact with well-known American physicians as by the expectation of obtaining a large audience for themselves or of forming a part of other men's audiences. This is an honorable and commendable feeling. For the opportunity of gratifying the medical profession of the entire hemisphere is indebted to the secretary general of the congress, Dr. Charles A. L. Reed, of Cincinnati. It was he who conceived the idea of such a gathering, it is to his tact that we owe the official steps that zeal it into being, and his rare carefulness and indefatigable zeal have made it successful. All through, Dr. Reed has been the soul of the undertaking, and he is now fairly entitled to be credited with its success. We hope that many more Pan-American medical congresses will be held, and that they will be managed as cleverly as Dr. Reed has managed this one.

THE LATE DR. JEAN MARTIN CHARCOT.

The life of the great Charcot came to an end unexpectedly, while he was temporarily staying at Morvan, about the middle

of August. Bourneville, a former pupil and colleague of Charcot's, writes in his journal, *Le Progrès médical*, that "death came on suddenly to the great master, and nothing had occurred to enable his friends to forecast such an event." Recent visitors to his clinique at the Salpêtrière had not failed to notice a loss of muscular vigor, a shambling gait at times, and a suggestion was awakened in the minds of many that the nervous and muscular apparatus of the great teacher were no longer so well attuned to one another as formerly. His vigor of mind and intentness of interest in scientific subjects were, however, in no wise abated.

The artistic element in Charcot's character was strong, and, with the qualities he possessed for acute observation and crisp description, helped him to place neurology on the high plane that it occupies to-day. Of his powers as an observer or clinician an editorial writer in the *Lancet* has said: "He is worthy to rank with Trousseau and Laennec." As a delineator or "word painter" he excelled. From the time of his early thesis on chronic pneumonia, about 1860, until his late psychological studies—for during recent years he has been concerned with those subjects rather than with his former problems in neurology—he has had no equal in graphic teaching. His artistic faculty found expression in the *Nouvelle iconographie de la Salpêtrière*, in *Les Démoniaques dans l'art*—by himself with the artist Richer—and in the collection of illustrations adorning the walls of his consulting rooms. These illustrations have for their chief theme the ancient conception of hysterical or epileptic "possession," an imaginative conception largely, on the part of the various artists, but based on facts. Charcot was on the *qui vive* for illustrations in the neurological field, and few teachers have availed themselves more fully than he of the improved processes of photography and other graphic methods. Charcot was great as a pathologist, and he was not hindered by the advance of years from continuing his work in that direction. He was a man of wide general attainments, interested in the sciences outside of medicine, and conversant with the literature of other countries as well as his own. His linguistic attainments were remarkable, as has been demonstrated at many a congress in England and on the continent. His voice will be greatly missed at the Rome Congress in 1894.

In conclusion, to quote again from Bourneville, "Science has lost in Charcot one of her most eminent and most noble representatives; France has lost one of those men who brought her added honor and contributed to her greater reputation through the whole world."

Charcot was born in Paris in 1825; he was therefore not more than sixty-eight years old at the time of his decease. The list of his contributions to medical literature is too great to be enumerated here. He was a member of the Institute of France and of many other societies in his own country and in others.

TYPHOID FEVER IN HARTFORD IN 1891 AND 1892.

The last Report of the State Board of Health of Connecticut contains a paper on Connecticut River Water as a Source of

Typhoid Fever at Hartford, contributed by Dr. Herbert E. Smith, the board's chemist.

The water supply of Hartford is ordinarily ample under a gravity system, feeding a suitable number of storage reservoirs. During a period of seven years, ending in 1891, it was at no time necessary to resort to river water, and the pumps at the river stations have been maintained only for emergencies. In 1891, however, the storage supply ran so low that a part of the city was supplied from the river, notwithstanding the fact that it was known that the river was constantly subject to contamination by sewage from Springfield, Mass., and from other smaller towns north of Hartford.

In the spring of 1892 there was an unusual number of cases of fever, and Dr. Smith was requested to make an investigation in order to learn how far the water supply or other possible sources of the disease had been at fault. The condition of the river water, it may be said, had been a source of more or less apprehension on the part of the consumers. This river water supply, therefore, was properly made the chief subject of inquiry, but attention was also given to the milk supply and the ice supply. These latter were severally excluded as the inquiry progressed, and the river water as a public supply to a part of the city became more and more distinctly incriminated.

The district supplied by river water, being populous and otherwise specially susceptible, had been in previous years more severely visited by fever than other districts. This peculiarity was present, also, to an exaggerated extent in 1892, but the greatest significance was attached to the prevalence of the fever in unusual months and to the fact that those months corresponded with the period of the river supply *plus* an average incubation period. Thus there were more cases of fever during the unusual months, November, December, and January—a period corresponding to the time when cases originating in the use of the suspected supply must have appeared. The reporter rejects the argument as to an epidemic influence possibly existing at that time, on the score that the fever was manifest nowhere else in the State than in Hartford.

The months of November and December, 1892, were marked by a high typhoid-fever mortality—the reported or estimated number of cases not being given for comparison—due to a return to the use of river water during three weeks and a half ending November 18, 1892. This recurrence of fever must be taken as confirmatory of the position assumed in respect to the unusual prevalence of typhoid fever a year before—namely, that the water from the river was a large factor, probably the largest one—along with other factors never wholly absent, in fanning the fever flame in winter.

The reporter takes up the question: Why, if the river water was productive of so many fever cases, were there not even more cases? His reply is important. He states that the sanitary officers of Hartford early and strongly urged the people of the river district to boil the water used for domestic purposes. This advice was very generally followed, it is believed. Furthermore, the river was not grossly polluted at the time of its examination by Dr. Smith, and was probably not very much

worse at the times when it was used as a public source of supply. A large amount of sewage, no doubt, flows into the stream, but the dilution is so very great that the chemical constitution of the water as a whole is not decidedly affected. Although in the latter part of 1891 the contamination was relatively much greater than usual, on account of the low state of the river, still it is not clear that the water contained large amounts of typhoid-fever poison. Our best observers hold the opinion that under conditions such as ruled at Hartford a large proportion of the endangered population will resist the contamination, and that only the more susceptible part will contract the fever.

The source of the typhoid-fever germs was not positively discovered, but the opinion of the reporter is that they came down the river from Springfield, twenty-five miles distant from the point where the Hartford supply is taken in. Cases and deaths had occurred at Springfield in the latter part of 1891, and it can not be doubted that fever germs entered the river and were carried southward. But the investigation was proposed to Dr. Smith at a period when it was too late for him to satisfy himself that the germs of typhoid fever were water-borne over that extent of twenty-five miles in number and virulence adequate to cause the transplantation of the disease from the one city to the other. It is Dr. Smith's belief that this was the manner of causation of the winter cases at Hartford in the river-supplied district.

Dr. Smith feels warranted by his facts in asserting that the Connecticut River just above Hartford is as pure as at any other point in his State, and he remarks that it is unsafe to use its water for drinking at any point in that State. That city is the only one that has hitherto resorted to river water as a public supply, even in emergencies, and the lesson taught by the experiences of the past two years will doubtless prevent the repetition of the experiment at any point within the reach of the influence of the State Board of Health, of which Dr. Smith is a member.

MINOR PARAGRAPHS.

PREPARATIONS OF GOLD.

DR. W. F. BARCLAY writes to the *Brooklyn Medical Journal* for September that he has for three years been experimenting with different preparations of gold. He concludes from his studies that the bromide of gold and arsenic is as useful therapeutically as any other known preparation of gold. Mr. Hays, of Pittsburgh, has made a liquor auri et arsenici tribromidi, of which the standard dose is ten drops. This dose contains one sixteenth of a grain of the arsenic salt and half that amount of the gold salt. The solution has a beautiful red color. The medicine should be administered in about half a wineglassful of water. It agrees well with the stomach and does not tend to produce constipation. The remedy has been used in cephalalgia, epilepsy, and syphilitic mania. Most of the patients have been discharged cured after a month or six weeks of medication. The treatment generally involved three doses daily, and was sometimes ordered to be continued for a time after the patient's discharge. Dr. Barclay has had another gold preparation made for him which contains mercury as well as arsenic. This new

drug is now being tried clinically by him, and he promises to report upon it.

AN ACCOUNT OF BELLEVUE HOSPITAL.

This is the title of an exceedingly handsome volume of nearly four hundred pages, prepared by Dr. Robert J. Carlisle and published by the Society of the Alumni of Bellevue Hospital. More than a hundred pages are devoted to a history of the hospital, embracing the period from the year 1736 to the present time, and most of the remaining pages are occupied with alphabetically and chronologically arranged lists of the medical officers. There are numerous pictorial illustrations, including a number of exterior and interior views of the institution and portraits of Dr. Valentine Mott, Dr. James R. Wood, Dr. Alonzo Clark, Dr. Fordyce Barker, Dr. William H. Van Buren, Dr. Willard Parker, Dr. Austin Flint, Dr. Isaac E. Taylor, Dr. Frank H. Hamilton, Dr. Benjamin W. McCready, Dr. John J. Crane, Dr. Henry B. Sands, Dr. George T. Elliot, and Dr. Edward B. Dalton, the rule apparently having been adopted of giving likenesses only of the dead. The book is one of very great interest and value, and it is creditable alike to the Society of the Alumni and to Dr. Carlisle. Copies of it may be ordered of Dr. Hermann M. Biggs, No. 5 West Fifty-eighth Street. The price is \$3 for the volume bound in cloth, and \$5 bound in half morocco.

A SCARLET-FEVER TOXINE.

Mr. T. J. BOKENHAM and Mr. W. Soltan Fenwick publish in the *British Medical Journal* for August 19th a paper detailing their research on the pathological effects of certain substances derived from the spleen in cases of scarlatina. They conclude that in cases of rapidly fatal scarlatina a morbid product of a proteid nature is formed that can be extracted from the spleen in small quantities. This substance, when introduced into the circulation of an animal, is rapidly excreted by the kidneys, and acting as an irritant to the secreting structure, tends to produce a condition of acute parenchymatous inflammation. Albuminous extract derived from a healthy spleen, and peptic albumoses, when injected into the circulation, never produced such an inflammation of the kidney.

AN ANTI-TUBERCULOSIS LEAGUE.

FROM the *Union médicale's* account of the proceedings of the recent Tuberculosis Congress we learn that M. Armaingault reported upon the progress of his *ligue contre la tuberculose*. It seems that the league has 2,103 adherents, and that disinfection services have been organized in Arcachon, Nice, Menton, Hyères, and other winter resorts for consumptives. One great difficulty that the league has met with appears to be its powerlessness to enforce the disinfection of hotel apartments; another is that there are still physicians who do not hesitate to proclaim that phthisis is not contagious.

ITEMS, ETC.

Society Meetings for the Coming Week:

MONDAY, *September 11th*: Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *September 12th*: New York Medical Union (private); Medical Societies of the Counties of Chemung (quarterly)—Elmira and Rensselaer, N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Northwestern Medical Society of Philadel-

phia; Baltimore Gynecological and Obstetrical Society; Richmond, Va., Academy of Medicine and Surgery.

WEDNESDAY, *September 13th*: New York Pathological Society; Metropolitan Medical Society (private); Medical Societies of the Counties of Albany and Montgomery (quarterly), N. Y.; Worcester, Mass., District Medical Society (Worcester); Philadelphia County Medical Society.

THURSDAY, *September 14th*: Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, *September 15th*: Baltimore Clinical Society; Chicago Gynecological Society.

SATURDAY, *September 16th*: Clinical Society of the New York Post-graduate Medical School and Hospital.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 5, 1893:

DISEASES.	Week ending Aug. 29.		Week ending Sept. 5.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	37	8	19	7
Scarlet fever.....	34	2	23	2
Cerebro-spinal meningitis....	2	2	74	0
Measles.....	66	6	50	2
Diphtheria.....	98	27	3	9
Small-pox.....	2	0	7	0

The Health of Dr. Lewis A. Sayre.—We are glad to be able to say that an operation for cataract recently performed on one of Dr. Sayre's eyes has proved most successful, and that his general health is excellent.

Proceedings of Societies.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

Held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 5, 6, 7, and 8, 1893.

The President, Dr. WILLIAM PEPPER, of Philadelphia, in the Chair.

Opening of the Proceedings by the President of the United States.—A joint resolution was unanimously adopted by the Senate on June 3, 1892, concurred in by the House of Representatives on July 14, 1892, and approved in July, 1892, by which the President was authorized and requested to invite the several Governments of the Western Hemisphere to send official delegates to a Pan-American Medical Congress.

PRESIDENT CLEVELAND, in opening the proceedings of this great assemblage at Albaugh's Opera House, spoke as follows:

"The part assigned me on this occasion admits of few words. It, however, affords me the opportunity to say how pleased I am to be in any way related to an assemblage such as this, called together in furtherance of the highest and noblest purposes and desires. I hope I may also be permitted to add that the protection of the public health and the prevention of contagious diseases are objects properly brought under consideration at the capital of a nation which appreciates fully the serious importance of everything which aids in making intercourse between civilized countries and commerce between them safe and easy. It is also fitting that those who devote themselves to saving human life and the alleviation of human suffer-

ing should consider the modes of reaching these beneficent ends at the seat of a government whose greatest regard is the welfare and happiness of the individual citizen. It only remains for me to declare this Pan-American Medical Congress open for the transaction of the business which has called it together."

An Address of Welcome on behalf of the District of Columbia.—The Hon. J. W. Ross, President of the District Board of Commissioners, delivered the following address:

The District of Columbia has entertained many distinguished public gatherings, but it has never known such a one as that which I now have the honor, in the name of the local municipality, to welcome to the national capital. For the first time in the history of the New World there are assembled in one of its capitals representatives of one of the oldest and most honored of the learned professions from all the Americas. It is fitting that in the District which derived its name from that of the great discoverer, and that in the year set apart as the one in which the nations may do honor to his memory, the Governments whose existence was hastened by the results of his genius and daring should send their representatives to a Pan-American convention.

It is in keeping also with the spirit of the age which has prompted this gathering of representative men that the delegates so convened should meet not for individual or national aggrandizement, but for the loftier purpose of extending the range of medical knowledge, and for the alleviation of human suffering throughout the world.

To a profession as progressive as that of medicine and surgery the results of such a conference can not be overestimated. When we consider the vast area of the surface of the globe here represented, the infinite variety of racial characteristics, of climatic conditions, and of all environments affecting health and disease, we can understand that such interchange of observation and experience was never before made possible. What may not be accomplished by all of the forceful men from all the Governments here represented, by plans for the establishment and for the enforcement of international quarantine regulations, and for international co-operation against the spread of infectious and contagious disease! The municipal authorities in many of the cities of the United States are now endeavoring to locate hospitals for the treatment of contagious diseases near enough to the centers of population to avoid the dangers incident to a long transportation of patients affected with such diseases, and near enough to be within the range of a water supply and of adequate sewerage facilities. It is the common experience of all who are charged with such responsibility that the dread occasioned to those who reside in the vicinity of the proposed locations assumes almost the proportions of a panic.

If the position maintained by many eminent physicians be correct, that such hospitals if properly conducted are not likely to be the means of communicating disease to those residing near them, the public mind should be relieved of its needless apprehension, and if this great body of experts should deem the matter worthy of its consideration there can be no doubt that an authoritative expression of its views would do more than could be hoped for from any other source to educate the public mind upon this subject. May there be as the result of all of your deliberations not only the formation and the renewal of personal friendships, but also a wider knowledge, a higher inspiration, and a just conception of the demands of the age upon your profession. And I can not but believe that this extraordinary spectacle, this assemblage of physicians from all of the great powers of the Western Hemisphere, has a deeper significance than even that most laudable purpose of the extension of medical knowledge among its constituents. Does it not indicate that benevolence and philanthropy are no longer lim-

ited by national boundaries, but that they are becoming as broad and universal as humanity itself?

There will never be a time when there will be no clashing of interests among the nations of the earth. But when the poor of Ireland were suffering for want of bread, when Chicago was desolated by fire, when Charleston and Johnstown were helpless, and when the peasantry of Russia were starving, the world's sympathy in the form of material aid ignored the ocean's barrier and the boundaries of States, directed only by the thought that the stricken and the suffering belonged to the same great human family. These bonds of human sympathy and the new swift means of intercommunication are bringing the nations into closer relationship. May we not be encouraged to believe that this Pan-American convention is a forerunner of successive congresses of all civilized States, whereby the common interests of the race may be fostered and maintained?

Mr. President and gentlemen, while you will have as your immediate hosts all of the members of the local profession, who are our most honored and respected citizens, I beg to assure you that the entire people of our District deem themselves honored by your choice of our city as your place of meeting, and that all will endeavor by word and act to make your welcome to the capital so cordial that you may carry with you to your distant homes only pleasant and agreeable recollections of your great convention at Washington.

The Secretary General of the Congress.—The President, Dr. PEPPER, in calling upon Dr. Charles A. L. Reed, of Cincinnati, for a report, alluded informally to the gratitude felt by the congress toward Dr. Reed for the zeal and industry he had brought to bear in furthering the successful issue of the undertaking.

Dr. REED said that the congress as it then stood must constitute his report. The work of organization had doubtless been an exacting, but nevertheless an extremely pleasant, task. After tracing the various steps which had been followed in working out the great scheme to its final point of perfection, he said that the medical profession of the Western Hemisphere had responded with enthusiasm. The delegates would represent every medical society in a profession numbering one hundred and fifty thousand.

Dr. S. S. ADAMS, of Washington, the Chairman of the Committee of Arrangements, then detailed the various plans for the entertainment of the delegates.

The remainder of the work of the opening session consisted of speeches of reciprocally congratulatory character by delegates on behalf of the constituent countries and colonies represented.

The President's Address.—Dr. WILLIAM PEPPER, of Philadelphia, the President of the Congress, delivered in Metzerott Hall the following address:

GENTLEMEN OF THE FIRST PAN-AMERICAN MEDICAL CONGRESS: This occasion is a unique one, and the thoughts which force themselves on the minds of all of us are, I am convinced, so similar that the briefest greeting might well seem the most fitting address. But when I reflect that I stand here to represent the original committee appointed in pursuance of the resolution which was adopted unanimously on May 5, 1891, at the meeting of the American Medical Association, and that this resolution extended a cordial invitation to the medical profession of the Western Hemisphere to assemble here in a congress, I realize the unusual dignity of the duty I must discharge. If anything could add to the dignity of this assemblage, which for the first time asserts formally the organic union of the physicians of all America, it is the fact that the Congress of the United States, impressed with the importance of our proposed meeting, passed a joint resolution (July 18, 1892), requesting

the President to extend those invitations in response to which we welcome the presence here of official delegates from all the Governments of the Western Hemisphere. In like manner are the several States of our own Union, the principal municipalities, and many of the leading educational institutions, both of North and South America, represented officially. You will not, then, think it strange that, called upon to address such an assemblage in this Columbian year, it should seem less fitting to dwell upon any technical topic than to turn our thoughts to the state of this continent and of its aboriginal inhabitants at the time of its discovery by Columbus, and to the obstacles which opposed him and the great men who completed his work. For these have had a bearing on the racial developments which have since occurred here, and should be held in mind in any estimate of the progress we have made during the subsequent four centuries. The state of medical science in Europe at the time of the discovery, and the spirit which has controlled its subsequent course, are fitly to be studied in connection with what we have accomplished during the same period and with the opportunities which present themselves to us at this time.

The recognition of the appropriateness and importance of this great meeting has been immediate and universal. International although it is, the basis of its organization and the special features which mark it, remove all possible suspicion of an imitation of, or of interference with, the great International Congress whose successive meetings form a crescendo scale of scientific and administrative triumphs which the medical profession of the world regards with justifiable pride.

Our executive committee, and our efficient general secretary, to whose unselfish energy and masterly powers of organization we owe a great debt of gratitude, studiously avoided the possibility of any such interference by delaying the selection of a date for our meeting until that of the Congress at Rome was announced, and by then adopting a date which not only permitted but encouraged the presence later at Rome of those who should gather here. I can only add my deep regrets that the unhappy reappearance of cholera in southern Europe—striking example as it is of the urgent importance of the very work which calls us together—has necessitated a postponement until next spring—a postponement which, however, there is no reason to fear will lessen the complete success of the meeting on its newly announced date. The International Medical Congress is, indeed, a splendid demonstration of the solidarity of the profession and of the world-wide scope of the objects we pursue.

This congress represents much more, however, than our common interest in medical science and the common feeling of brotherhood which animates the entire profession. It is—indeed, it always has been, and forever may it so continue—the glory of the medical profession that their allegiance is one and undivided, for their service is solely in the cause of truth and humanity. Dynasties have risen and crumbled; the map of the world has been changed times almost without number, but the march of medical science through the ages has been ever onward and upward toward those lofty goals—the prevention of disease, the relief of suffering, the improvement of the race.

For us who meet here there is all of this glorious recollection and animating purpose, and there is much more to unite and to inspire us. We meet under the shadow of giant conceptions, as old as Aristotle, which agitated the minds of the great thinkers of antiquity, and were but slowly approaching a definite form when the sublime faith and genius of Columbus solved the problem of the globe.

It is true that this vast American continent, with its sixteen million five hundred thousand square miles of territory, already numbers one hundred and ten millions of inhabitants,

embracing all types of human life, and many varieties of political organization. But all that has yet been accomplished is but the feeble beginning of the development which awaits us. When Canning secured the recognition of the republics of South America, he boasted that he had called the New World into existence to redress the balance of the Old, and yet the luminous suggestions of Franklin, of Bolivar, and of Blaine as to the political and commercial relations of the countries of the Western Hemisphere are still only prophecies which must long await their fulfillment.

The destinies of nations are slowly evolved, and occurrences which fill the horizon of a generation appear to the broad gaze of history as mere features in the great panorama of the ages.

Even a period of four hundred years is but a fraction of the history of Spain, of France, of England. Yet four hundred years ago this entire continent was not only undiscovered and unknown, but its very existence was unsuspected save in the ingenious speculation of philosophers. We recall the familiar but ever interesting lines of Seneca:

Venient annis secula seris
Quibus Oceanus vincula rerum
Laxet, et ingens pateat tellus,
Tiphys que novos detegat orbes
Nec sit terris ultima Thule—

and do not marvel that their strain of glowing conviction should have led Columbus to write them out twice over in his *Profecias*. But all the same, this New World lay shrouded in the obscurity of the great Sea of Darkness, out off, as we have since learned, from the known inhabited world by changes wrought in remote geologic eras, and waiting the fullness of time which should lead the inspired genius of Christopher Columbus to seek the East by sailing west. We now know that in his quest of a western passage to Asia he reached the eastern shore of this continent on October 12, 1492, but even to the time of his death, on January 20, 1506, neither did Columbus nor any voyager or writer have any conception of the vastness and real significance of his discovery. All that the geographical knowledge of the day enabled them to grasp was the belief that Columbus had found a new route to the Indies by sailing west. Within a few years, however, the daring sailors of Spain and Portugal, of Italy, and of England, pushed their voyages along the coasts. The astonishing discoveries of Americus Vesputius on his celebrated third voyage in 1501–1502, when between Lisbon and the island of South Georgia he traversed an arc of ninety-three degrees, led him to apply for the first time to this continent (it really was South America of which he spoke) the title of New World (*Mundus Novus*). It concerns us not to consider further how, by no intent or design of Vesputius, portions of South America at first, and later the entire continent, came after his death to be named after him. Yet when a few days ago I held in my hands the little quarto published in 1507, in which Professor Martin Waldseemüller, of the College of Saint Dié in Lorraine, first suggests the name America, in utter ignorance that the coast explored by Vesputius was continuous with or even related to the land discovered by Columbus, I could not help smiling sadly at the frantic and fruitless efforts we make to secure immortality by our petty observations, while here Fame, in strange whimsey, threw her laurels for the greatest discovery ever made around the head of one who neither had nor preferred a claim to it.

Geology and paleontology have taught us that this so-called New World is in reality, in a scientific sense, better entitled to the name of the Old World. The oldest known strata have their widest development on its surface, and animals, such as

the horse, which are said to have been introduced after 1492, are shown to have had their original habitat here and to have migrated hence to Europe, so that Cortes and Pizarro only re-introduced them to their former home. It is more important to recall the fact that the entire stretch of North and South America was, at that date, 1492, peopled more or less thickly with the descendants of tribes who had resided here from very remote antiquity. A high authority assures us that the number of these aborigines was probably from twelve to fifteen millions, and in spite of considerable differences in physical appearance, as between the Iroquois of New York and the Aztecs of Mexico or the Incas of Peru in dialect and habits, it is generally conceded that this vast aboriginal population, of North America and South America alike, with the exception of the Eskimos, belonged to one great race of red men.

Eskimos and red men alike seem to have migrated to our continent at one time, or more probably in successive waves, in the remote past, either when the northwest corner of America was joined to Siberia by the elevation of the area now known as Bering Sea, or when the lofty submarine ridge which now passes from France to Greenland was elevated so that it would be possible to travel on foot from Europe to America. If the attempt be made to decide at what period of geologic time such immigration occurred, and whether in one great migration or, as seems most probable, in successive waves, problems of extreme if not insurmountable difficulty present themselves.

The aborigines who were living on this continent at the time of its discovery by Columbus presented, it is true, considerable differences in the stage of development they had reached, as well as in their language and even in their appearance. There are long intervals of social development evident between the squalid sty of the California savage, the log house of the Iroquois, and the great structures of Zuni, of Tlascala, or of Uxmal. Yet in them all can be demonstrated an underlying principle of adaptation to a certain mode of communal life such as all American aborigines are believed to have practiced. All attempts to distinguish the existence of special races, as of the mound-builders, have broken down in the light of critical study, and the powerful arguments of philology confirm the results of zoological study as to the essential unity of the American red race. The tribes in different parts of this vast territory certainly presented marked differences in physical appearance, and our ethnological collections show that as regards size and weight of frame and shape of skull considerable variety existed among them. But all possessed the cinnamon-colored or copper-colored complexion, the high cheekbones and small, deep-set eyes, the straight, black hair, with scanty or absent beard; and the conclusion of the most competent authorities is that no sufficient differences—physical, linguistic, or social—existed to invalidate the evidence in favor of the unity of the race.

Fortunately we are not called on to attempt to read the geological record. For our purpose it is indifferent whether all the relics of the ancient Americans are of the neolithic type, or whether the apparently plausible claim be ultimately established that palæolithic remains are also found in various places. This at least we know, that the soil and climate had shown themselves favorable to the development of a population already numerous, vigorous, hardy, and enduring, and brave and warlike, though often cruel, and evidently advancing in social development, though at very different rates at different localities. Ignorant as we are of their primitive origin, it is doubtful if the most earnest advocate of the monogenist view that all mankind was originally descended from one pair, will urge that our aborigines were descended from a single couple, or even from a

few boat-loads of Asiatics accidentally carried to our Pacific coast, or that we shall hear again the arguments drawn from the many striking resemblances between the myths, languages, customs, or hand-wrought objects of the aboriginal Americans and of various Oriental nations. The surprise which, I am sure, all of us have experienced at these resemblances must be checked by these two thoughts so well expressed by Fiske and by Lubbock respectively, that one of the most important lessons impressed on us by a long study of comparative mythology is that human minds in different parts of the world, but under the influence of similar circumstances, develop similar ideas and clothe them in similar forms of expression; and again, that different races in similar stages of development often present more features of resemblance to one another than the same race does to itself in different stages of its history.

An immense amount of sympathy has been expended upon the cruel treatment of the American aborigines by the European invaders. Of course, it was the sad old story, so often repeated, whenever a better armed and more highly civilized power has come into conflict with a primitive, ignorant, and ill-armed people. Over the ghastly picture of Indian slavery one would indeed wish to draw a veil, though its darkest shadows are relieved by the splendor of the character and labors of the illustrious Las Casas, and by the enlightened action of those great men, Emperor Charles V, Pope Paul III, and Cardinal Ximenes. But it is a romantic extravagance to deplore the destruction of any system of government or society which existed in 1492 in any part of the continent. If the present state of the native Indian population in North and South America is far from satisfactory, and fails to fulfill the promise shown, especially in South America during the first century after the conquest, may this not fairly be attributed to unwise legislation by the ruling nations, to the absence of continued, effective religious instruction, and to the base cupidity which has led us to promote the fatal passion for stimulants, so common among barbarous people? There seems no sufficient evidence to make us lose hope that the remains of the aboriginal Americans may, under more wise and equitable treatment, gradually develop into useful citizens of our republics, and be capable of wholesome assimilation with the body of the population.

It is easy to assert and hard to disprove that the development of the red race on this continent was progressing slowly prior to 1492. As a matter of fact, we do not possess the data, either about their early history or about the primitive condition and rate of development of any of the more civilized races, to permit us to institute a comparison. Our earliest knowledge of the ancient Egyptians, for instance, reveals them living in a state of civilization already advanced at least a full ethnical period beyond that even of the Aztecs. How many centuries had elapsed while the successive stages of savagery and barbarism were passing in Egypt can never be even surmised. There seems no reason to doubt that, had America not yet been discovered, there would have been going on here for the last four hundred years a slow and irregular approach to a higher social condition. There certainly is no doubt that during and since the conquest many sad mistakes, and not a few atrocious crimes, have been perpetrated in the name of civilization and of liberty. But, on the whole, the student of history is forced to admit the enormous advantages which have resulted from the conquest by Europeans of the fifteenth and sixteenth centuries of tribes the most advanced of which were still in a very primitive state of civilization.

I have ventured upon this rapid sketch of a familiar subject because it is well that we should be clear in our comprehension of the conditions which existed in America four hundred years ago, when the start was made to introduce the European races

and civilizations. We meet here to-day to represent what these have accomplished in their new environment during these four centuries in regard to certain highly important subjects. We can not fail to be interested in considering what scientific acquisitions in these branches were actually brought here, what disadvantages were to be contended with, how far our progress may be regarded as satisfactory, what great questions there are which concern us all deeply, and in what lines of research and work we may unite for the common good, and for the greater advancement of science.

The words graven on the tomb of Ferdinand Columbus in the cathedral at Seville: "To Castille and Leon, Columbus gave a New World," are indeed true, but they do not express the whole truth. John Fiske well says: "The discovery of America may be regarded in one sense as a unique event, but it must likewise be regarded as a long and multifarious process. The unique event was the crossing of the Sea of Darkness in 1492, and no ingenuity of argument can take from Columbus and from Spain the glory of an achievement which has, and can have, no parallel in the whole career of mankind. It established a true and permanent contact between the eastern and western halves of our planet, and brought together the two streams of human life that had flowed in separate channels ever since the glacial period." But to demonstrate the magnitude of this discovery, to determine the physical features of this Western Hemisphere, to plant firmly the seeds of European civilization, demanded the heroic exertions of two full centuries. Not Spain alone, but Portugal, Italy, France, England, Holland, Denmark, Russia, played their part, and the names of Cabral and Pinzon and Magellan, of Cortes, Balboa, and Pizarro, of Ponce de Leon and Soto, of Champlain and La Salle, of Drake, Hudson, Baffin, Davis, and Bering, must remain associated forever with this stupendous and progressive work of discovery. Not until 1806 was the last step taken by Lewis and Clark, who then succeeded in crossing the continent of North America from east to west, and thus completed the task undertaken by Champlain in 1608. And if the mere study of the outlines and dimensions of America occupied two centuries, what are we to say of the far greater obstacles opposed to the colonization of the vast territory, and to the determination and establishment of suitable forms of government, and of harmonious relations between the numerous States and countries into which America soon came to be divided?

The older political systems of Europe seem to require still the assistance of considerable artificial support, and their occasional disturbances are of a decidedly unpleasant character. Is it strange that some of us still have our little unpleasantnesses at home or with our neighbors, which indicate that the education of our people is as yet woefully imperfect in those things that most nearly concern their welfare? Of this, at least, we may be sure, that all that promotes free intercourse among us helps on mightily the solution of these hard problems. It is a true saying that to know is to excuse, and, more than this, in regard to nations if not strictly in regard to individuals, it may be added that to know is to love. We turn with quickened interest to the sage advice of the illustrious Franklin, who, in 1749, embodied in his plan for the organization of the University of Pennsylvania an earnest advocacy of the thorough teaching of the Spanish and Portuguese tongues as likely to hasten the development of those close reciprocal relations which he foresaw would inevitably arise between the countries of the two Americas. The spirit of the age as it embodies itself in our educational systems and in our literature, the giant

forces of steam and electricity, as they link together the most distant points of our territory, are working inevitably together for the enlightenment, the elevation, the better mutual understanding, and the more cordial relations of all of us.

The year whose four hundredth anniversary we now celebrate found the world stirred as never before. A work of tremendous importance for the future of the human race had been going on amid the gloom of what are often called the dark ages. The more closely this period of absorbing interest is studied the more do we appreciate the magnitude and the necessity of the changes effected during those centuries in preparation for the splendid activities of the Renaissance. The mission of the middle ages had been really, though not obviously, a cosmopolitan one, and it was fitting that the noblest achievement of the Renaissance should be the discovery of America. The barriers between nations had been lowered, and there had been going on the process of blending and interpenetration which was soon to be extended to this Western Hemisphere with such large results. The protest against mere dogma in religion and in philosophy, the revolt against usurped and abused absolutism, the demand for light and knowledge and the common rights of humanity, these awakened then to be stifled no more, but to swell forever in larger utterance until they shall, in some yet distant golden time, announce universal liberty under equitable laws and universal peace through arbitration. It is not for us to taunt the glowing expectations of the men of 1492 with their long-postponed fulfillment. It ill becomes us of to-day to speak in other than tones of humility when across the brightest spots of the vaunted civilization of the close of the nineteenth century after Christ there still fall so many dark shadows lingering from the deep mediæval night.

How each generation turns aside with the restless impatience of children from the lessons of the past, and shuts its eyes to the truth which inexorable history calmly shows, that long periods of time are required for the accomplishment of each great advance in religious, or political, or social, or scientific truth.

Yet though we smile somewhat sadly as we read the bursts of enthusiasm so plentiful at that time, we dare not challenge the fitness of that grand name, the Renaissance, to the age which, through its mighty discoveries and the master minds who used them, diffused among the nations the new conceptions of the earth and the skies, of the Church and the State. Only the pity of it that such long centuries of travail must ensue between this implanting of the seed of religious and political liberty and the mature growth for which we still wait.

In no respect may the discovery of America be regarded as the dividing line between the middle ages and the modern era more truly than in regard to medical science. In spite of the prodigious learning of the most distinguished Arabian and Jewish physicians, such as Avicenna, the Prince of Physicians, of Albucasis, of Avenzoar, the Wise and Illustrious, of Maimonides, their medical science was far too largely speculative and philosophic. Great universities were established, some of which, as those of Bagdad and of Cordova, possessed regal revenues and magnificent libraries. Numerous hospitals were founded, of which the large and wealthy one established at Cairo in 1283 merits special mention. But the outcome of this long dominion of the Arabs and the Moors, so far as concerns medical science, was merely a marked advance in chemistry and pharmacy, the introduction of many new remedies, and the advocacy of the union of the natural sciences with medicine. Their chemistry was tintured strongly with alchemy, their clinical teaching was elementary, their diagnosis and treatment lacked the true Hippocratic force and directness.

* Á Castilla y á Leon
Nuevo mundo dió Colon.

The endless speculations and metaphysical discussions of the schools had shown that it was not that way true progress lay. Unaided observation had scarcely gone further in eighteen hundred years than the point to which the immortal Hippocrates had carried it. True medical science, which could not progress without precise methods and instruments of precision, was forced to wait until from very different quarters came the development of the natural sciences and the era of exact experimentation which alone rendered them possible. Harvey's immortal discovery of the circulation of the blood was not announced until 1616, and his almost equally important and epoch-making discovery of the origin of the higher animals from the egg was published in 1651; yet it may be safely asserted that the work of this modest and truly scientific Englishman did more to advance medicine than all the labors of all the schools from the days of Hippocrates. Not only were the facts demonstrated of infinite importance, but his method of patient, exact observation and experimentation until the truth was developed by cautious induction marks the introduction of a new era, and stamps Harvey as the father of modern medicine.

Galileo first indicated the use of the thermometer in medicine about 1595. Sagredo, of Venice, improved it in 1613, and Sanctorius, in 1625, urged its importance in the study of disease forcibly, but as yet ineffectually. Just as the astronomer, Galileo, gave us the first rude thermometer, Kepler, another illustrious astronomer, gave, in 1604, the first record of an accurate count of the human pulse. But so slowly did the importance of this datum in the study of disease impress the medical profession that the acute Sydenham, who lived until 1689, nowhere mentions a single pulse count. It is hard to find anything which illustrates better the radical difference between the spirit of mediæval and of modern medicine than the vast mass of obsolete literature upon the pulse, loaded with fanciful speculation and super-refined subtleties of description, and yet wholly deficient in the only features which would give practical value to the study. What progress in exact medicine could be made without chemistry? Yet scarce any development in this branch occurred between the eighth and seventeenth centuries. And it was Boyle, the father of modern chemistry (not born until 1627—died 1691), who first succeeded in freeing from the trammels of alchemy this noble science. Not until the end of the seventeenth century did the value of quantitative analysis begin to be appreciated. Lastly, it was not until 1590 that we hear of the first compound microscope in the hands of Jansen.

Meanwhile the gross superstitions, combined with a blind dependence on the great authorities of antiquity, and especially on Aristotle and Galen, which had so long dominated medical science, yielded slowly to the growing light of positive knowledge. Fine-spun subtleties, drawn from metaphysical speculation; the fantastic notions of alchemy and astrology; the rank growth of impostures which flourished in the soil of ignorance, and the bigotry which placed every organ under the charge of a special saint and conjoined with every remedy a special form of supplication, still marked medical teaching and medical practice. But the bold, fearless, investigating spirit of the sixteenth century did its work for medicine as it did for other great matters. Vesalius (1514-'64) and his contemporaries created accurate anatomy. Paré (1509-'90) stamped imperishably on surgery the influence of his genius and lofty character. Paracelsus (1493-1541) hurled the shafts of ridicule and invective against the groveling subserviency to ancient authority, and did a rough but important stroke of work toward the emancipation of the medical mind. The grand old Hippocratic method of careful observation and cautious reasoning was reasserted, the unproductive philosophy of Galen and his Arabian

worshippers was discarded, and at last there begins to emerge from the darkness of so many centuries modern medicine, the medicine of loyalty to Nature and revolt against mere human authority; of reverent skepticism and reasonable faith; the medicine of scientific experimentation and of humane vivisection, that insists upon knowing the causes of disease and that looks to Hygiene as its noblest expression.

The history of European medicine for more than three hundred years is a record of which we may well be proud, when the enormous obstacles to progress are held in view. It is not necessary to remind this audience of a single one of its great triumphs. Vesalius and Paré, Harvey and Sydenham, connect themselves with Bichat and Laennec, and Hunter and Jenner, and Pasteur and Lister, and Virchow and Koch, and the torch of genius is passed down the line of these immortals and lights up the ages with the splendor of their achievements. But it is sad to reflect upon what has been done as contrasted with what might have been. The dense ignorance of rulers and masses on scientific questions, the slow progress of sound, useful education among the people, the huge claims of imperialism and militarism, the wanton waste of luxury, have retarded research, have left but paltry sums available for the diffusion of knowledge, have hindered the embodiment in legislation and in actuality of much that would help the healing of the nations. It is an odd commentary on the vaunted civilization of to-day to contrast the sums doled out by the most enlightened governments of Europe for the promotion of higher education and original research or for the suppression of preventable diseases with those lavished on the vast hosts of armed men and the huge fleets of unwieldy armored ships deemed necessary for the maintenance of peace and order.

Within our own day we have seen the announcement of the grandest generalization reached by the human mind, in this century at least, and advanced in the most philosophic and inoffensive manner, received with a burst of intellectual skepticism and of religious intolerance which showed that the old forces against which the Renaissance protested, and still protests, are yet alive, though happily shorn of most of their power. The marvelously rapid spread of the illuminating doctrines of Darwin, and their incorporation in the thought and speech of the world, and in the teachings of the churches, may indeed be pointed to as the crowning intellectual achievement of the nineteenth century.

If the actual progress of medical science was slow in Europe during the years which followed that *annus mirabilis*, 1492, surely no word of reproach may be uttered against the early settlers in North and South America, because, amidst their heroic efforts to conquer this vast continent, it was long before they found time or energy to devote to the cultivation of that practical and essential subject of medical science. It is true that in 1551 Charles V founded the University of Lima, in Peru, and in 1558 the University of Mexico. Yet it does not appear that medicine was taught at these universities until a little prior to 1700.

In North America, although Harvard College was founded in 1636, the title of university seems to have first been applied to the University of Pennsylvania, which in 1765 established the first school of medicine in the United States. The scattered handfuls of early settlers on our shores had indeed problems facing them more urgent than the promotion of science. They differed as widely in their motives for undertaking the appalling task of conquering and colonizing America, and in their fitness for the work, as they did in their nationalities. Separated widely from the mother countries, hampered very often by unwise and vexatious interference from the home governments, they waged war against the powerful tribes of aborigines who

swarmed over the country, and against the no less serious obstacles of untried climatic and political conditions. Bloody warfare raged promiscuously, and disease was rife. We have seen that the work of mere preliminary exploration occupied two centuries. The close of the third century found the early struggles approaching a successful ending, only to be followed by violent political changes, not accomplished save by long and costly wars. The English conquest of Canada in 1759-'60, the achievement of independence by the United States in 1783, the establishment of the independence of the South American Republics in 1810 and the ensuing twenty years—these are the events from which the future historian will date the Renaissance or the Decadence in America, and to which reference will always be made in estimating our capacity for progress in politics, in literature, in art, and in science.

For a long time it seemed even to friendly critics that the new races which strove for a foothold on American soil were unlikely to thrive as vigorously as in their accustomed habitats, and the impossibility of developing a genuine and lasting American type was freely asserted. To those of us who have considered this point with anxious care, the last two decades have brought results that put to rest all apprehension. Whatever may be the future changes in the political organization or relations of the countries composing America, it is a demonstrated fact that the European race in America, which already numbers over a hundred millions, will show no decline in vigor or in energy, in physical or in mental strength. It is not on account of mere bigness in material achievement that we point to the millions who fought in the great civil war; or to the hundred and seventy thousand miles of railroad in the United States—almost as much as in all the world besides—and the \$10,000,000,000 of capital invested, and the army of nine hundred thousand employees; or to that tremendous structure, the Canadian Pacific Railroad; or to the plans now under consideration for developing a continuous railway system for the entire continent, from Montreal or Puget's Sound to Buenos Ayres. It is, even more, as evidences of large imagination, of courageous resolution and dauntless tenacity of purpose, and of enormous power of physical endurance that we value the enterprises which have subjugated this continent so swiftly and are hastening its commercial consolidation. We may be assured that countries which have shown such sturdy love of independence and resistance to outside interference, which have displayed so much sagacity in adapting their political constitutions to their peculiar conditions, which liberate and enfranchise all who dwell within their limits and afford to all an equal chance of advancement, will work out their destinies to far larger and wiser plans of friendly co-operation than we can now foresee.

Turgot, in his memorable address in the Sorbonne, well declared, "Tous les âges sont enchaînés par une suite de causes et d'effets qui lient l'état du monde à tous ceux que l'ont précédé." The discovery of America depended on the operation of causes which can be traced back many centuries. The present condition of our continent, four hundred years later, is the result of the action and reaction of mighty movements which involve every country of the world. Here is the new and probably the last great place of gathering and intermixture of all nations. Here as nowhere else are to be studied with all the aids of exact science the problems of ethnology and sociology. Here are to be worked out to the best advantage the problems concerning the relations of man to his physical environment; and the demonstration that, in spite of the apparent magnitude of the powers of Nature, and in spite of the admitted influence of climate and physical condition upon the progress of civilization, the powers of man for intellectual and social advancement are incalculably superior.

In all of this work a large share must devolve upon medical men, and fortunately our position in America is one which will enable us to work together with good effect. The high average intelligence of our people will make them prompt to appreciate results of solid utility or scientific value. The enormous wealth, present and prospective, of this continent should readily be diverted more and more bountifully to the promotion of learning and research—if, as may be trusted, we shall strive more and more after peace among ourselves and abroad.

We shall never cease to be proud of our lineage, or to acknowledge the immense debt we owe to Europe. Its languages are ours; its glorious past is part of our heritage; its mighty names in art and philosophy and science are household words with us. Its rapidly advancing civilization incites us to loftier efforts. But the balance between the Old and the New Worlds is being redressed.

All know how the examples of our young and vigorous communities have supplied and fed the infectious principles of political liberty and of social equality. In every struggle for the rights of man, from the terrible but beneficent drama of the French Revolution down to the present hour, our example and our assistance have been invoked.

I can not detain you by an enumeration of the services already rendered by America to medical science. Almost immediately after the discovery important contributions to pharmacology were announced, chiefly from South America, and from the introduction of guaiacum, in 1508, until now these contributions have become more and more frequent. The entire medical world was agitated during the latter half of the seventeenth century by the struggle over the merits of cinchona bark, introduced into Europe in 1640 by Juan del Vego, and no more convincing tribute can be adduced as to the value of medical and sanitary science than the prominent place occupied by malarial diseases in the general and medical literature of the seventeenth and eighteenth centuries as contrasted with the feeling of impunity with which they are now regarded. Among the results which may be anticipated from this meeting is, I trust, the adoption of some well-considered plan for systematic conjoint study of our American remedies and their pharmaceutical preparations, looking to their scientific classification, to greater uniformity in their preparation, and ultimately to a single pharmacopoeia for the entire continent.

The introduction of nitrous oxide (1844) and of ether (1846) into medical practice, with which the names of Wells and of Morton are so honorably connected; the establishment of the operation of ovariectomy by McDowell, of Kentucky, upon a secure scientific basis—these and hundreds of other achievements of lesser brilliance are too familiar to need mention. Every one knows now how superfluous it is to say a word in defense of American literature, and certainly we who know how powerfully the opinions and practice of medical men in Europe and throughout the world are influenced by American writings may view our position with some complacency. Yet a survey of what America is actually contributing to medical literature shows clearly how far we are behind the nations which lead in medical thought. In the year 1879 Rupprecht's *Bibliotheca* gave as the total number of new medical books, excluding pamphlets, periodicals, and transactions, 419, divided as follows, viz.: France, 187; Germany, 110; England, 43; Italy, 32; United States, 21; all others, 26; and for 1891 I find the same *Bibliotheca* gives the total number as 1,063, divided as follows, viz.: Germany, 360; France, 243; Great Britain, 141; United States, 80; Italy, 78; Austro-Hungary, 70; Spain, 24; other countries (chiefly Switzerland and Denmark), 67.

On the other hand, in the more ephemeral forms of medical literature the figures are very different. I have had a careful count made of the volumes of medical journals and transactions filed in the library of the Army Medical Museum at Washington, with their respective places of publication, and from this it is clear that of these classes of medical literature there were, in 1890 and in 1891, published in America (including Canada, the United States, and Latin America) about twice as many volumes as in Germany or France, and fully three times as many as in Great Britain.

Of course we must not forget the fact that in the hurry of our life of to-day many observations and investigations of great value are published in journals, instead of being reserved to become part of more serious and complete volumes. But it will not be doubted, I think, that the great excess of medical journals in America, as contrasted with the comparatively small number of new medical works, is entirely consistent with the admitted leadership of Germany, France, and Great Britain in medical science. The fact that during the past twelve years Germany has risen from a place in this list second to France, 110 as against 187 in 1879, to the first place at present, with 360 new medical works in 1891 as against 243 published in France, speaks eloquently of the strenuous effort with which newly united Germany is straining forward in science as in other fields. The truth is that the apparently extraordinary number of medical journals in America is due chiefly to a substantial reason, and one which influences equally the existence of very numerous medical schools and medical societies. The vast extent of territory and the relatively sparse population render it impossible to serve the country with as low an average of medical men, schools, societies, or journals as is possible in more densely populated countries. As to other and less satisfactory reasons which have operated, especially in the United States, to produce a great growth of ill-equipped medical schools and of poorly supported medical journals it is not necessary to speak here. Indeed, the rapid rise in the standard of scientific requirements, both of medical men and medical literature, and the increasing appreciation on all sides of the fact that the higher medical education is the true interest both of the profession and of the public, is accomplishing the much-needed work of checking the ill-considered establishment of new medical enterprises, and of stimulating those in existence to more earnest life and more lofty aims.

So true is this in regard to our medical journals in particular, that no one who has occasion to consult regularly the files of any number of them can fail to have been struck forcibly with the steady and decided improvement in the tone of their management and in the scientific quality of their contents.

This congress meets at a period of peculiar and critical interest in medical education, and I am glad to say that for the first time in the medical history of the United States we may feel proud to have such a meeting convened here, and to invite a close examination of our educational standards and facilities. I should fail in courtesy and in candor alike were I not to acknowledge the great value of the example which has been so consistently set by Latin America and by Canada in the maintenance of a high standard of qualifications for medical practitioners.

Fifteen years ago the medical profession of the United States arraigned severely the management of their over-numerous medical schools.* While Canada then exacted a reasonably strict entrance examination and a course of medical study ex-

tending over four years, with one session of six months in each year, and while every country in Latin America exacted a collegiate degree or a rigid entrance examination, and a course of medical study extending over six years, it was the general custom with the medical schools of the United States to grant a diploma conveying the full right to practice medicine to applicants who had been admitted without preliminary examination, and had attended without term examinations two courses of lectures covering about five months, and had passed a single and final examination conducted by their own teachers, whose emoluments were derived solely from the fees of such students. This discreditable prostitution of a great educational trust had been gradually brought about by large causes upon which I may not now comment. But it is with justifiable pride that we may point to the admirable and sweeping reforms that have since been instituted. It remains true that the laws of many of the States allow charters for medical schools to be secured without any guarantee of the standard of education that shall be maintained. But the awakened sentiment of the profession and of the community has in a rapidly increasing number of the States insisted that medical graduates before being admitted to practice shall pass a State examination conducted by an impartial board of examiners appointed by the Governor. The medical schools, to their honor be it proclaimed, have, with few exceptions, been foremost in the struggle to secure this wise and beneficent legislation. They have done much more. In advance of these laws which will insure a far higher standard of medical qualifications in the States fortunate enough to be so protected, the faculties of a number of the leading schools have forced their standard up at first to three years of obligatory study, and now to four years of eight months' study each, with a carefully graded curriculum and with strict examinations before entrance, at the close of each term, and finally before graduation.

When we recall that this has been done without the slightest governmental aid, and, further, that, owing to the prevalent view that medical schools have been sources of large profit to their faculties, the streams of private benefaction had not yet been directed in their favor, you will appreciate the high sense of duty and the devotion to science which have led these faculties to assume greatly increased labors with an expectation of considerably diminished remuneration owing to reduced attendance of students and to augmented expenditures.

The Committee of Arrangements of this congress has wisely provided for a tour of inspection of some of these institutions. It is trusted that all of our foreign delegates, and as many as possible of the members of this congress, will avail themselves of this opportunity to examine the equipment of some of our leading medical schools. They will be gratified to find in hospitals, in laboratories, and in libraries and museums alike, facilities which bear comparison with those of Europe. They will find an arrangement of studies, and, above all, an organization for the conduct of daily thorough bedside instruction in all branches of medicine, which leave little to be desired. It is easy to foresee, as another of the desirable results of such meetings as this held successively in various parts of America, such increased acquaintance with and confidence in our respective methods of medical education and medical treatment as will retain on our continent many of our students and many of our invalids who have been in the habit of going farther to fare no better.

A broad field opens before us for the study, with the aid of collective investigation, of the distribution and course of phthisis and rheumatism and other important diseases as influenced by race and locality. The endemic fevers, other than malarial and typhoid and yellow fever, which are said to prevail in various

* Regular schools, 65; homœopathic, 11; eclectic, 4; total, 80, in 1877.

parts of North and South America, have long demanded systematic investigation to complete the study which the illustrious Drake began. We shall now have the opportunity of studying, equally by means of collective investigation, the relative effects of various climates on the numerous races now represented in America, and of determining more accurately the scientific and practical questions connected with our extensive series of health resorts which embrace the finest examples of every type. There are, indeed, none of the sections provided for in this congress from whose work more valuable results should follow than from those on medical pedagogies, on hygiene and climatology, and on quarantine. It was a sense of the urgent importance of these latter subjects, especially at the present time, and of the valuable results sure to follow their consideration by such a body as this, which led the Government of the United States to extend the cordial invitation which has been uniformly accepted on the part of the Pan-American Governments. I feel that by this action there has been secured for the subject of Hygiene and State Preventive Medicine a formal recognition never before accorded on this continent, and one which must surely be followed by the willingness of the respective Governments to use their influence to secure the enactment and efficient administration of proper legislation in accordance with the recommendations of this body of eminent experts.

When the International Medical Congress met in Philadelphia in 1876, the address on Hygiene and Preventive Medicine, delivered by the distinguished Bowditch, himself a pioneer in sanitary science, was one of the most impressive utterances on that important occasion. The review there given of the work of the previous century in this country in sanitary science was not flattering, but with the fine enthusiasm which marked that gifted man he predicted the immediate opening of the grandest epoch yet seen in the history of medicine. His closing appeal must be quoted: "Our PRESENT DUTY is organization, national, State, municipal, and village. From the highest place in the national council down to the smallest village board of health we need organization. With these organizations we can study and often prevent disease." These stirring words were in accord with the spirit of the times and with the developments of science. When the brilliant discoveries of Koch brought to light the specific bacillus of tuberculosis and of cholera, and pointed out the scientific method to be pursued in similar investigations in the future, an unanswerable argument was provided against skepticism or indifference or official penuriousness. It required courage and showed rare breadth of view in Lord Palmerston to issue his celebrated reply to the Presbytery of Edinburgh on the occasion of the threatened outbreak of cholera in 1853, in which he urged that the weal or woe of mankind so far depends upon the observance or neglect of the natural laws by which the affairs of the world are regulated, that if the local causes of disease were not removed before the return of the hot weather, the pestilence would be sure to return in spite of all the prayers and fastings of a united but inactive nation.

Much was accomplished, it is true, in preventive medicine between 1853 and 1876, when Bowditch spoke; but it is scarcely an exaggeration to say that the progress in the past twenty years has been greater than in the preceding twenty centuries. We have not, indeed, yet detected the specific poison of every infectious disease; even in regard to the familiar and much studied yellow fever, the latest publication of the distinguished Surgeon General of the United States Army shows that this point is still unsettled. But the position of the whole matter is changed radically. Hypotheses have given way to facts. Every one now knows, or ought to know, that the most dreadful diseases are inseparably connected with definite organisms, that these organisms have special laws of development and distribu-

tion, that to destroy or exclude them is to avoid the disease, and that to tolerate conditions which favor their development is to encourage and invite the attack of the disease. When these simple, demonstrable propositions are considered in connection with such scourges as cholera and yellow fever, and typhus and typhoid fever, and scarlatina and diphtheria, and epidemic meningitis, it needs no further argument to prove the value and the necessity of quarantine, and of efficient medical inspection and protection. Nor does it need further argument to show the wisdom of establishing laboratories of hygiene at many points over the country, of equipping them amply with the ablest men and the finest apparatus, and of endowing them liberally, so that the search after the yet unknown causes of disease, and after the best methods to prevent the development of such causes as are known, may be prosecuted with ceaseless vigor.

It is easy now to get a hearing for these views when public comfort is disturbed, the public purse threatened, and the public conscience awake and sensitive. At this moment our great commercial communities are reposing in confidence upon the sanitary measures adopted by our Governments, in accordance with medical advice, for the restriction and exclusion of two dreaded pestilences, cholera and yellow fever. Recall with me the popular terror of last summer. Recall the hideous loss of life and the disastrous effects on commerce caused by former invasions of these diseases when the communities afflicted were smaller and less wealthy than are ours at present. We do not have to seek back to the middle ages for pictures of desolation wrought by infectious disease. Recall that tragic story of the great yellow-fever epidemic in Philadelphia just one hundred years ago, as told by Rush. Try to estimate the result if cholera had effected a lodgment in New York city in July, 1892, and having found favoring local and climatic conditions, had, as on former occasions, spread its deadly germs to the North and South and West. The fair White City that was rising by that distant lake, under the magic wands of Art and Industry, would have been stricken with a fatal blow. No computation can well exceed the loss that would have fallen on this country. The entire people gazed with bated breath at the struggle waging in New York Harbor, and universal thanksgiving arose when the dread invader was finally repulsed by the vigorous and sustained efforts of the sanitary authorities. That we in America are not to-day witnessing the aggravated recurrence of the epidemic, in accordance with unvarying precedent, can be due only to the continuance of these same efforts, re-enforced with large authority, and aided by more efficient local sanitation. When this gratifying result is associated with the success which for some years has attended our efforts for the exclusion of yellow fever, no further argument can be needed to urge the adoption of such uniform measures as will for the future afford most sure protection against these diseases. These instances exhibit in the most striking manner the need and the value of the international sanitary agreements this congress may do much to promote. But there will occur to all of us many other important questions to be solved only by earnest and united work. Nor can this work be accomplished until Bowditch's cry for organization is far more fully answered than it yet has been. Nothing but organization and co-operation, and, yet more, the establishment in the government of every civilized nation of a department of public health, will secure the continuous and forcible attention which the magnitude of this enterprise demands. There should be, and the day can not be far distant when there shall be, in the cabinet of every government here represented, a secretary of public health, of rank, influence, and prerogative equal to that of any other cabinet officer.

Here, then, is the last and greatest service to be rendered to science and to the nation by our congress. Our combined influence will be irresistible when used in advocacy of higher education; in carrying out large plans for the scientific study of our national life, as affected by social and climatic influences; in the adoption of remedies and remedial measures of demonstrated merit, and in the insistence upon a fuller recognition of the lofty function of preventive medicine. "Salus sanitasque reipublica, suprema lex." Let us acquire here a closer touch with each other, a deeper faith in our profession and its noble destiny, and a stronger determination to labor in brotherly co-operation for the loftiest ideals of service to science and the race.

(To be continued.)

Book Notices.

The Law of Cremation. An Outline of the Law relating to Cremation, Ancient and Modern, together with the Rules and Regulations of Various Cremation Societies at Home and Abroad. By AUBREY RICHARDSON, Solicitor. London: Reeves & Turner, 1893. Pp. iv-187.

THE author of this little volume states that he prepared it from material collected to determine whether a person could arrange for himself as to the mode of the disposal of his remains after death, and whether or not such disposal was entirely in the hands of his executors. It would, at first thought, seem odd that a law must be enacted by which a testator could insure that his body after death would be disposed of according to his own wishes, but further consideration recalls many familiar instances in which a testator's wishes have been thwarted where specific law did not exist.

The ancient law of Egypt, Persia, China, India, Greece, Rome, America, and Judæa is summarized, and the modern law in various European and American countries is reviewed in a succinct and satisfactory manner.

The book will be found useful by any one desiring information on this important subject.

Decipherment of Blurred Finger Prints. By FRANCIS GALTON, F.R.S., etc. London: Macmillan & Co., 1893. Pp. 18. [Supplementary Chapter to *Finger Prints*.]

THIS little volume constitutes a supplementary chapter to the author's monograph on *Finger Prints*, and contains his comments upon a comparison of the impressions of the forefinger and middle finger of the right hand of eight different persons, made in the first instance in the year 1878 and secondly in 1892. The illustrations in the volume afford new evidence of the persistence of the forks, islands, and inclosures found in the capillary ridges.

Indigestion, Gout, Corpulency, and Constipation, clearly Explained, Treated, and Dieted. By THOMAS DUTTON, M.D. Univ. Duhr., Member of the Royal College of Physicians of Edinburgh, etc. Third Edition, enlarged and revised. London: Henry Kimpton, 1893. Pp. x-220.

THIS is a work intended to enlighten the public, and incidentally the profession, on the physiology of digestion and the causes, symptoms, and treatment of indigestion, with a brief reference to foods and the rearing of infants. We believe that the book is well calculated to impress a suffering public with the author's skill, and that its judicious circulation is calculated to increase his practice.

BOOKS, ETC., RECEIVED.

Annual of the Universal Medical Sciences. A Yearly Report of the Progress of the General Sanitary Sciences throughout the World. Edited by Charles E. Sajous, M.D., and Seventy Associate Editors, assisted by over Two Hundred Corresponding Editors, Collaborators, and Correspondents. Illustrated with Chromo-lithographs, Engravings, and Maps. Vols. I, II, III, IV, and V. New York and London: The F. A. Davis Company, 1893.

On the Nature and Treatment of Talipes Equino-varus or Clubfoot. By Bernard E. Brodhurst, F.R.C.S., Surgeon to the Royal Orthopaedic Hospital, etc. London: J. & A. Churchill, 1893. Pp. 60.

Transactions of the New York State Medical Association for the Year 1892. Vol. IX. Edited for the Association by Ogden C. Ludlow, M.D.

The Epileptic Interval; its Phenomena and their Importance as a Guide to Treatment. By William Browning, Ph.B., M.D., Brooklyn. [Reprinted from the *Journal of Nervous and Mental Disease*.]

Symmetrical Localized Hyperplasias of the Subcutaneous Fat. By Albert S. Adler, M.D., San Francisco. [Reprinted from the *Pacific Medical Journal*.]

The Profession of Medicine as sketched from the Outside and from the Inside. By S. W. Kelley, M.D., Cleveland, Ohio. [Reprinted from the *Cleveland Medical Gazette*.]

Unilateral Hypertrophy of the Face. By D. W. Montgomery, M.D. [Reprinted from the *Medical News*.]

Cæsarean Section: Historical, Statistical, and Clinical. By Hamilton Fisk Biggar, M.D., LL.D., Cleveland, Ohio.

Zymotic Diseases in Chicago. Sanitary Exhibit of the Illinois State Board of Health. World's Columbian Exposition, 1893.

Archives of the Cincinnati College of Medicine and Surgery. Vol. I. [Reprinted from the *Cincinnati Medical Journal*.]

Reports on the Progress of Medicine.

PHARMACOLOGY AND THERAPEUTICS.

By H. A. GRIFFIN, M.D.

The Uses of Thioicamf.—Duffey (*Dublin Journal of Medical Science*, May, 1893) has been led to use thioicamf as an intestinal antiseptic, a surgical application, and an antiparasitic in cutaneous affections. His communication has already been briefly alluded to in this journal. Thioicamf is described by Professor Emerson Reynolds, its discoverer, as a "liquid which results when sulphur-dioxide gas is brought in contact with camphor." In this liquid are dissolved several substances destructive of bacteria, among them benzoic acid and phellandrene. Thioicamf can be preserved without pressure in bottles at ordinary temperatures, but on its exposure in thin layers a steady evolution of large volumes of sulphur-dioxide gas charged with the vapors of other disinfectants takes place. From this action it has been much used for atmospheric disinfection, and, for the same reason, Duffey has applied it to the uses noted. For internal administration it was combined with pure butter fat in the proportion of ten per cent. of thioicamf. Of this, ten grains were given in capsule every two or three hours for four doses. The capsules were sometimes coated with keratin, that they might pass through the stomach and be dissolved in the

intestines. The drug was thus used in a case of typhoid fever, in a case of phthisis in which the patient was suffering from pyrosis, in a case of dilatation of the stomach, and in a case of alcoholic peripheral neuritis in which the patient had fetid alvine evacuations. In all of these the signs of fermentation became less marked and the character of the movements improved.

In two cases of scabies a four-per-cent. solution in olive oil effected rapid cures. In bedsores and unhealthy ulcerations it was used in oily solution (four to six per cent.) with the effect of quickly removing fœtor, diminishing the discharge, and promoting healing. No ill effect was noted in any case.

The Treatment of Malignant Tumors by Inoculations of Erysipelas.—Coley (*Am. Jour. of the Med. Sci.*, May, 1893) offers and tabulates "all the reported cases of carcinoma and sarcoma, in which erysipelas, either spontaneous or artificial, intervened," presents several cases of his own so treated, and reaches the following conclusions: 1. The curative effect of erysipelas upon malignant tumors is an established fact. 2. The action upon sarcoma is more powerful than upon carcinoma, in about the ratio of three to one. 3. The treatment of inoperable malignant tumors by repeated inoculations of erysipelas is both practicable and unattended with great risk. 4. The curative action is systemic, and probably due chiefly to the toxic products of the streptococcus, which products may be isolated and used without producing erysipelas. 5. This method should not be employed indiscriminately until further experiments have proved its limitations.

Albuminate of Iron.—Stewart (*American Therapist*, March 15, 1893), though he objects to the statement that albuminate of iron should be given in preference to all other iron salts, because it is ready for absorption without chemical change, and bases his objection on the facts that other salts of iron are absorbed and fulfill their special functions, yet finds much to be said in its favor. Its advantages are that it is not astringent, does not injure the teeth, does not constipate, does not precipitate the digestive ferments, does not irritate the stomach, is readily assimilated, can be given to children with ease, is not toxic, and "fulfills every indication for a plain tonic. It can not be used in place of other salts of iron employed for their astringent or local effect." A favorite practice of the author's is to give, after each meal and at bedtime, a compressed tablet consisting of two grains of iron albuminate and a sixtieth of a grain each of arsenious acid and strychnine sulphate.

Benzonaphthol.—Huchard (*Rev. de pharm.*, February, 1893; *Am. Jour. of Pharm.*, May, 1893) prefers benzonaphthol as an intestinal antiseptic to salol or betol, because it is scarcely toxic and because he thereby avoids the possible dangerous effects of salicylic acid. Three hundred grains of benzonaphthol and seventy-five grains of powdered charcoal are mixed and divided into thirty capsules, of which from six to eight are given in a day.

The Treatment of Diphtheria with Pilocarpine.—Hirschfeld (*Australasian Med. Gazette*, April, 1893) has had an extensive experience in the use of this drug in diphtheria and is much impressed by its usefulness. He explained its action as assisting in the detachment of the false membrane by means of the salivation produced, as causing an increased flow of blood to the parts, and hence a greater number of leucocytes to resist the invading bacilli, and as producing intense perspiration, whereby the ptomaines and toxalbumins already absorbed are eliminated. For a child six years old he orders a mixture of a third of a grain of pilocarpine, from half an ounce to an ounce of brandy, an ounce of syrup of orange, and enough water to make three ounces. Of this a teaspoonful is to be given every two hours. This, as a rule, is sufficient, but, if necessary, it may be given every hour. The brandy is given to counteract

any depression resulting from the pilocarpine. The use of the drug should not be discontinued abruptly. With the production of perspiration the temperature falls and the false membrane is cast off "in a surprisingly quick time." A gargle of chlorate of potassium is also generally employed, together with a moist compress to the throat.

Kumyss as a Food.—Nitchevoff (*N. Y. Therapeutic Review*, April, May, June, 1893) calls attention to the advantages of kumyss as a food and tonic in gastro-intestinal diseases and in fevers, and thinks it often preferable to milk on account of its being predigested by the ferments and its containing tonic principles produced in its preparation. Recent analyses of different kinds of kumyss have shown many species of bacteria present which were not necessary for the production of fermentation, and the author points out the danger of using such specimens, both because they soon become so offensive in odor and taste as to be unfit for use, and because of the danger of the presence of pathogenic germs. Kumyss to be good "must undergo several weeks' fermentation, during which lactic acid, carbonic acid gas, and alcohol are formed" and the casein is partially digested. Properly made, kumyss can be kept for a long time, and it is only such kumyss that may safely be given.

Unusual Tolerance of Nitroglycerin.—Reading (*Therap. Gaz.*, May, 1893) reports a case of chronic interstitial nephritis in which he prescribed nitroglycerin in dose of a hundredth of a grain. This produced the physiological effect, but soon the dose required increasing, as no effect followed its administration. As each increase in dose produced its effect but for a short time, the amount was gradually increased until, in less than a year from the time when it was first administered, the patient was taking a teaspoonful of a ten-per-cent. solution (six grains of the pure drug) at a dose, and with only good effect, for under its use the patient's condition had markedly improved. The drug was given largely diluted to prevent injury from so concentrated a solution. The reporter regards this case as evidence that the good effects of nitroglycerin can be obtained only when its use is pushed to the limit of tolerance, regardless of the size of the dose.

The Therapeutic uses of Exalgine.—Younger (*Lancet*, April 8, 1893) finds exalgine of great service in neuralgic pains of a functional nature, one or two doses producing relief, often permanent. In neuralgic symptoms occurring in the course of mental disease, too, the drug has been most efficient in his hands. In one case of epilepsy, where it had been given for severe frontal headache, not only was that symptom relieved, but the seizures were rendered much less frequent. The doses used were never larger than two grains every four hours, and usually one grain repeated several times daily was employed. The dose was generally dissolved in ten minims of spirit of chloroform, and water or some infusion added to make up the ounce.

Ointment Bases.—Shoemaker (*Medical News*, April 29, 1893) reviews and discusses the various ointment bases, and concludes that in the majority of cases our choice must rest upon lard or lanolin. Petroleum jelly resists chemical change and is pleasant in appearance, free from smell, and of good consistence; but it is apt to be contaminated with irritant impurities, and its absorptibility is slight. Lard is readily absorbable, but readily undergoes decomposition. This, however, may be prevented by adding benzoil or a small quantity of beta naphthol. Suet may be preferred to lard on account of its greater stiffness; it is not, however, so readily absorbed. It may be mixed with lard to produce greater firmness. Lanolin is almost devoid of odor, very rapidly absorbed, aseptic, and unalterable. Spermaceti and cacao butter have the disadvantage of being of unstable composition.

Miscellany.

The Naval Medical School.—We have before mentioned the plan for the instruction of newly appointed assistant surgeons. On June 22d the Secretary of the Navy issued Circular No. 52, as follows:

1. The Naval Laboratory at New York shall hereafter be known as the U. S. Naval Laboratory and Department of Instruction.

2. Assistant surgeons shall, immediately after admission to the navy, be ordered to the Naval Laboratory and Department of Instruction for such study and instruction, under prescribed rules and regulations, as may be necessary to familiarize them with the duties of medical officers afloat and on shore.

Appended to the circular were the following rules and regulations:

I.—Assistant surgeons, as soon as commissioned, will be ordered to said establishment and will be required to faithfully perform their duties while undergoing instruction. They will also be furnished with a copy of this circular, and their names registered in accordance with prescribed form contained in book supplied by the Bureau of Medicine and Surgery. This book will be kept on file in the Department of Instruction for future reference.

II.—The course of instruction will continue for a period of at least three months, and will embrace the following subjects:

1. Chemistry, general, analytical, and organic. 2. Hygiene and sanitary science. 3. Microscopy and microbiology. 4. Military surgery and operative work. 5. Clinical medicine and hospital work. 6. Construction and ventilation of modern war ships. 7. Examination of recruits and life-saving methods. 8. Navy regulations, navy ration, hospital fund, pension fund. 9. Keeping medical records at hospitals and on board vessels of war, and blank forms pertaining to the Bureau of Medicine and Surgery.

III.—The director in charge of the U. S. Naval Laboratory and Department of Instruction will assign assistant surgeons to the Naval Hospital, New York, for careful and thorough instruction in the following branches:

CLINICAL MEDICINE AND HOSPITAL WORK: Bedside examination of patients, visiting hospital with medical staff at morning visit, studying and investigating carefully the etiology of disease, as associated with naval life, and the diseases to which sailors are chiefly susceptible, giving attention to and becoming familiar with the technique of the laryngoscope, ophthalmoscope, practice with trial lenses in helping to determine the nature and degree of errors of refraction, thermometer, stethoscope and sphygmograph, preparation of temperature charts, diet lists, etc., as aids to accurate diagnosis, etc.

NAVY REGULATIONS, NAVY RATION, HOSPITAL FUND, PENSION FUND: *Navy Ration.*—General history of diets, including steps leading to the present recognized principles; general considerations in relation to health and disease, efficiency of force and mortality in time of war; diseases depending upon dietetic deficiencies, with the historical accounts relating thereto; origin of the United States Navy ration, original component parts, with the nutritive and dynamic values and changes at various times, with the effect on values; a study of present United States Navy ration in all relations, including comparisons in nutritive and dynamic values with the rations of foreign navies, and considerations in connection with work done in different climates and parts of ship; spirit ration; condiments; tea and coffee; packing and preserving methods.

Pension Fund.—When established; acts of Congress relating thereto; trustee of pension fund; amount of pension fund; how invested; those entitled to benefit of fund; sources of income to pension fund.

Hospital Fund.—Sources from which derived, and how utilized.

KEEPING MEDICAL RECORDS AT HOSPITALS AND ON BOARD VESSELS OF WAR, AND BLANK FORMS PERTAINING TO BUREAU OF MEDICINE AND SURGERY: Preparation of medical records, embracing all steps necessary to the admission and discharge of patients from hospital, hospital tickets, case papers, reports of medical survey, etc.; also observing carefully the therapeutical indications in each case, general pharmacy, triturations, post-mortem examinations and reports, meteorological observations and reports.

IV.—He will assign Assistant Surgeons to the Naval Medical Examining Board for careful and thorough instruction in the following branches:

HYGIENE AND SANITARY SCIENCE: Embracing the general principles of hygiene, causes of disease, methods of investigation and prevention, vital statistics, first aid to the injured, blood circulation, muscles, exercise, nervous system, contagious diseases, digestion, respiration, organization and duties of health authorities, sanitary jurisprudence.

Water Supply.—Rainfall, flow of streams, storage of water; quantity required for cities and towns, asylums, hospitals, etc.; impurities of water, their origin and nature, whether occurring at its source, in storage, or in distribution, and methods of purification by screens, filter beds, infiltration galleries, chemical processes, etc.; analysis, microscopical and chemical.

Air.—Composition, its impurities, effect of these on the sanitary condition of cities and towns, hospitals, asylums, public and private dwellings.

Soil.—Methods of studying the topographical and geological features of a district in reference to the effect of the quality and characteristics of the soil upon drainage and other sanitary conditions; the location of cemeteries, etc.

House Drainage.—Water supply and drainage of naval hospital buildings and private dwellings; the removal of laundry, sink, and closet refuse; practical elements of plumbing.

Sewage.—Removal and disposal by various methods, including the frequent and systematic removal from cesspools and privies, accompanied by disinfection and deodorization, by the water-carriage system, pneumatic system, etc., to points of its final disposition; the construction of sewers, including combined and separate systems, outfalls, sea outfalls, tank sewers, ventilation of sewers, etc.; final disposition of sewage, garbage, and other refuse by cremation furnaces, irrigation, filtration, chemical precipitation.

Ventilation.—Quantity of air required under various conditions; method of supplying or renewing air by natural or spontaneous means, by artificial means.

Heating.—The various means of heating, by stoves, hot-air furnaces, hot water and steam, and the most practical and efficient treatment of problems arising under various circumstances connected with public and private buildings; the construction of apparatus and the distribution of heat, whether in connection with or independent of the ventilation; the principles of heat and thermo-dynamics, applicable to all constructions connected with heating and ventilation, including boilers, radiators, flow of air through conductors, etc.

Inspections.—Methods of examination of sanitary conditions of public buildings and dwellings at navy yards and stations, and of sewers, drains, and water courses; methods of disposal of sewage and garbage.

Drainage.—The drainage of districts for sanitary objects, surface, and subsoil drainage; drainage of sites for hospitals, dwellings, barns, and outhouses.

Sanitation of Government Reservations.—The construction, care, and management of cesspools, privies, etc., and their disposition with regard to wells and dwellings, care of gardens and yards, with reference to the accumulation and removal of refuse; system of drainage at Navy Yard and Naval Hospital grounds, New York.

Pollution of Streams.—Remedies to be adopted and means of prevention.

Quarantine and Sanitary Regulations.—International, national, State, and interstate quarantine laws; the various measures to be instituted before the departure of vessels from foreign and infected ports; thorough inspection of every part of the ship by medical officer assigned to this duty; medical examination of passengers and crew.

Sanitary Precautions at Sea.—Arrangements and facilities for disinfecting and fumigating ships.

Sanitary precautions to be observed on arriving in port.

Location, character, and construction of quarantine hospitals.

Quarantine regulations with reference to disposal, fumigation, and disinfection of merchandise.

Sanitary administration.

MILITARY SURGERY AND OPERATIVE WORK: Duties of the naval surgeon in relation to care of surgical instruments; carriage of sick and wounded on shore, afloat, embarking, and disembarking, including extemporary transport; preparation for service on board and on shore before action; instruments and supplies in action, and duties afloat and in the various lines of surgical assistance; establishment of field, temporary, and permanent hospitals and lines of assistance; hospital attendants; diagnosis, prognosis, and treatment in full of all injuries in battle, including full instruction in abdominal surgery for wounds; the trephine, amputation, resection, and other operations, and the use of extemporary appliances; preparation and record of statistics relative to the systematic arrangement and classification of the wounded. Construction and study of ambulances of modern design.

CONSTRUCTION AND VENTILATION OF MODERN SHIPS OF WAR: Study of sectional plans of modern vessels of war, showing system of ventilation, heating, lighting, sanitary fittings, arrangement of quarters, manner of berthing officers and men, air space, location of sick bays, dispensaries, storerooms, lavatories, bathrooms, etc.; list of ships of the navy, displacement, type, station, or condition; personal visits of inspection to all ships at navy yard, including receiving ship, vessels in commission, ships of war undergoing construction and nearing completion.

EXAMINATION OF RECRUITS AND LIFE-SAVING METHODS: Will include general inspection of surface of recruit, extremities and articulations, thorax, abdomen, groin and genitals, spine and perineum, head, face, and neck, cranium and organs of special sense, intelligence and age. In the preparation of "list of persons examined" (Form X), the directions embodied in the Book of Instructions will be strictly followed. Rules for restoring the apparently drowned—how to arouse the patient; to expel water, etc., from the stomach and chest; to produce breathing; after-treatment (externally and internally); evidences of vitality, etc.

V.—He will assign assistant surgeons to the Naval Laboratory for instruction in the following practical work:

CHEMISTRY: GENERAL, ANALYTICAL, AND ORGANIC: Inorganic chemistry; also chemistry of air, water, artificial illumination, photography, lime, mortars and cements, building stones, decay and prevention, timber and its preservation, pigments, paints, essential oils, varnishes, explosives, gunpowder, gun cotton, and nitroglycerin. Disinfectants for hospital and ship use. Metric system of weights; qualitative, quantitative, and blowpipe analysis; organic chemistry, general principles and methods of analysis.

Analytical: Qualitative.—Having acquired a thorough experimental knowledge of the reactions of a group of bases or acids, single members of the group or mixtures must be submitted to him for identification, enabling him to proceed from simple to complex cases, until he is able to determine the composition of the most difficult mixtures.

Quantitative.—1. To analyze substances of known composition, such as crystallized salts, that the accuracy of his work may be tested by a comparison of his results with the true percentages.

2. Required to make analyses of materials occurring in commerce or in the applications of technical and sanitary chemistry, etc., as fertilizers, fuel, water, etc. The object being to instruct in analytical methods.

Organic.—The laboratory work to consist of: Ultimate analyses, including determination of carbon, hydrogen, nitrogen, sulphur, and haloid elements in organic substances; determination of vapor densities, molecular weights, specific gravities, melting and boiling points, and calculations of formulæ. Analysis must be made on material supplied or authorized beforehand by the instructor at the laboratory, and he will require of the student, whenever practicable, reports in writing on completion of the work.

MICROSCOPY AND MICROBIOLOGY: Practical acquaintance with the handling of the microscope, its construction, use, care, and choice; simple lens, optical principle, construction, and use; compound lens, low-power objectives, use and care; accessory apparatus, general method of work, illumination, effect of different media; the eyes, peculiarities, use, and protection; mounting, dry, in liquid, and in cells; section cutting, soft and hard tissues, crystals, rock sections and grains; staining; high-power objectives, use and care, cover connections, and immersion fluids; adulteration of foods, drugs, etc., detection of fibers, paper, and handwriting.

Microbiology.—Laboratory examination of unicellular forms of life, yeasts, protozoa, ameba, the molds, algae, and fungi of fresh waters; fauna of potable waters.

General Bacteriology.—Isolation, preparation of culture media, mounting and study and identification of species, bacteria of potable waters, sewage bacteria, typhoid bacillus, biological examination of Croton water, Brooklyn aqueduct water, etc., bacteria of the atmosphere, biological analysis of air of hospital wards, class rooms, etc., disinfectants and filters, bacteriological tests.

VI.—Application, whenever necessary, will be made to the Commandant of the Naval Station, New York, for authority for the medical officer assigned to the duty, in company with the assistant surgeons undergoing instruction, to visit receiving ship, and all modern ships in commission, ships undergoing construction and nearing completion, that may be at the navy yard, for the purpose of inspection of every part of the vessel, and gaining information relating to general arrangement of sick and other quarters, system of ventilation and heating, air space, etc.

VII.—When assistant surgeons are assigned for instruction in specified branches to hospital, examining board, or laboratory, the senior officers thereof shall appoint, as they may deem advisable, the medical officers under them as instructors in the special work, assigning to each such subjects as may be agreed upon by consultation, care being taken that the system of instruction will necessitate everything in writing. The student must carefully prepare all reports on the subjects assigned to him before presenting them to the instructor for inspection and remarks. When papers are completed they shall be delivered by the instructor to the senior officer of the hospital, examining board, or laboratory, as the case may be, who will retain them until all papers prepared by the student during his term of instruction are received, when they shall be forwarded to Director of Naval Laboratory and Department of Instruction, in accordance with prescribed form.

VIII.—Medical officers, when assigned as instructors, whether attached to laboratory, hospital, or examining board, shall keep an accurate record in book form of all work required of assistant surgeons undergoing instruction. These record books, when completed, shall be delivered to the Director of the Naval Laboratory and Department of Instruction to be placed on file. They will also see that assistant surgeons are provided with everything necessary to prosecute their work in an intelligent manner; use of apparatus for qualitative, quantitative, and organic analysis, for microscopy, and for bacteriology and chemical reagents for practical work in laboratory or elsewhere, use of surgical instruments and appliances for hospital work, free access to library, and use of modern text-books on every subject taught.

IX.—Assistant surgeons will be held responsible for the proper care and safe return of instruments, books, microscopes, apparatus of all kinds, etc., placed in their charge during course of instruction.

X.—When the professional record of an assistant surgeon is completed, and all papers prepared by him on subjects assigned at hospital, examining board, and laboratory have been received by the Director in charge of the Laboratory and Department of Instruction, he shall see that they are properly compiled and transmitted to the Bureau of Medicine and Surgery, in accordance with the prescribed form.

XI.—The assistant surgeon's professional record will be kept on file in the Bureau of Medicine and Surgery until he becomes eligible for examination for promotion, when it will be transmitted to the Naval Medical Examining Board for inspection, to be returned to the bureau on completion of his examination. This record, together with examination papers of both first and second examination, will then be bound in book form and kept for future reference, as a guide in assignment to duty, according to professional and other qualifications.

Borax in the Treatment of Epilepsy.—In an article published in the July number of the *Liverpool Medico-chirurgical Journal*, Dr. William Alexander says:

"The medicinal treatment of epilepsy is a wide subject, and can not be dealt with at the end of a paper like this; we will only deal with one or two phases of it.

"At the present time it resolves itself into the administration of bromide of potassium, varied by the occasional addition or substitution

of bromides of sodium, ammonium, or strontium. We have in bromides a powerful means of controlling this disease, but the question of cure by their aid is entirely unsettled and exceedingly doubtful. In ninety nine cases out of a hundred a medical man called to a case of epilepsy will prescribe bromide of potassium, and the prescriptions of specialists who have been consulted by an epileptic all contain bromides. In our experience, we have no hesitation in saying that this universal treatment by bromides is often disastrous.

"Here is the substance of a letter from a very intelligent mother, who reported to us her experience of the treatment of her son, and which illustrates the present practice from a lay point of view:

"She says: 'At about the age of nine years our son developed occasional slight spells of *petit mal*. We consulted Dr. —, who pronounced him epileptic. He had not then had any actual fits. Bromide of sodium, ten grains three times a day, prescribed. His first seizure occurred when he was ten years and a few months old. Seizures at first came at intervals of months, then weeks, one at a time.

"At twelve years old saw Dr. —, who prescribed bromide of ammonia, with no good result. Has seen many doctors, including Dr. — again, who all range the changes on bromides of various kinds with monotonous persistency, until the poor boy became a physical and mental wreck. His tongue seemed paralyzed, he could with difficulty articulate, and sat in a dazed condition, taking interest in nothing. During his fits, even during the attacks of *petit mal*, he was unable to retain his urine. He was a pitiable sight, and had become reduced to this condition by bromide, as I shall prove.

"In February last, when taking about sixty or seventy grains of bromide of soda each day, as he had been doing for years, he had thirty-four fits—ten one night, four another, and so on. In despair, I left off giving him the useless stuff. Some one casually spoke to me of borax as an alleviator, and on the 5th of March I began giving him twenty grains powdered borax three times a day. In March he had eighteen fits, in April two. In May I had reduced the dose and he had five. In June, having resumed the full dose, none at all. In July, on the 30th, one slight fit, nine weeks having elapsed since the last. In August none, but he began developing a kind of eczema. I gave up the borax on that account on the 11th of September; and although I have resumed giving it again, it seems somehow to have to some extent lost its virtue. In September he had four fits, and so far in October eight. His fits at present occur on awakening in the morning, and are preceded by a prolonged attack of *petit mal*, with occasional cries and jerks. However, although the borax is failing a little in its effects, he is like a different person—bright, active, and energetic. He reads, writes, plays on the piano, and takes an interest in all that goes on. His mind has been checked and is undeveloped, like a child's mind, and am afraid the bromide has mentally maimed him for life.'

"This letter describes in a mother's eloquent language our impression of the perniciousness of the treatment of chronic and confirmed epilepsy by large and increasing or constantly repeated doses of bromides. We would go further, and deny that bromides, thus given, produce an arrest of the attacks, of sufficient extent, and in a large enough number of cases, to counteract their baleful effects on the brains of many patients.

"We have now met with many patients where the fits have been arrested, and in a considerable number permanently arrested so far, under various methods of treatment; but we do not remember any cases where large doses of bromide constituted the treatment. We may arrest the fits by bromides, as we have already said, for a time, but it is generally at the expense of the patient's brain: a few take the drug kindly, and the benefit seems unmingled, but these cases are very few.

"We could detain this meeting all night with cases culled from our experience at Maghull, where patients have come there after years of treatment with bromides—one, two, or even more drachms a day—misérable, pustule-marked, introspectively inclined creatures (that is, if they have got any acting, unbrunized brains left), with feelings and fads and nervous symptoms, minds and bodies blighted or apparently wrecked.

"A few months of rational treatment will probably not make much difference in the number of attacks, which burst out again as soon as

the bromide is stopped, but the patients soon appear like different beings, can think rationally, and of something else but themselves, and it becomes a pleasure instead of a pain to converse with them, and to study their welfare.

"Attacks of epilepsy temporarily stupefy the patient and upset the mental faculties, but this effect is quite different and generally of a less serious nature than the deterioration produced by bromide. For these reasons, we rarely give greater doses of bromide than five grains, three times a day. Larger doses are very rarely required except as a sort of medicinal police, and, like the police, are only required when a case becomes refractory, to be dispensed with when the patient becomes amenable to ordinary treatment.

"In the letter from the lady referred to above, reference was made to the use of borax in the treatment of epilepsy. We have used it pretty extensively for several years, as it seems a comparatively harmless drug, and we will conclude this paper with a description of the results of our employment of it.

"Borax alone has much disappointed us, although we know of several cases in which it has acted as a charm; but we are inclined to believe that it acts best when given after the use of bromide, or especially in conjunction with small doses of bromide.

"Statistics of the results of the treatment of epilepsy are never final except they cover many years, and when the comparison of the effect of using different drugs is made under conditions that are somewhat similar. It is very hard to obtain conditions that are similar, but at Maghull we have the best approximation to similar conditions that has hitherto been obtained in this country.

"We need not trouble you with a table showing the effect of giving borax alone at Maghull, because it failed in all the cases in producing any decided benefit.

"Mixed with small doses of bromide of potassium it had a better effect, but with bromide of sodium the result seemed to be still better, and for some time we have used the following prescription in a considerable number of cases:

"B Sodii biborat.	gr. 200;
"Sodii bromid.	gr. 50;
"Syr. simplic.	℥ j;
"Aq.	ad ℥ x.
"℥ j t. d. ex aq. p. cib.	

"Sometimes, but rarely, a fourth dose is given. The following statistics have been prepared by me of the effects of this prescription on patients who have been treated with it for a sufficient time to allow of an impression being made.

"The previous treatment was very varied, and it would be too tedious to present it all before you. It included all kinds of bromide treatment, regular and irregular; also indifferent treatment, where the general health only was attended to; and finally, cases where other reported specifics, such as zinc, antipyrine, simulo, etc., were given.

"Although this method of treatment has a good influence on the attacks, its beneficial effect on the mental condition of the patients is much more uniform. A great many of the patients showed symptoms of post-epileptic or periodical mental disturbance. Several of them were stupid and dull for several days, and a few were bedridden and helpless at times, and required then to be treated as imbeciles. These mental disturbances have almost disappeared, and the patients have been saved the necessity of confinement in lunatic asylums. In fact, in several instances the secretary had warned the friends that removal from the Home would probably be necessary on account of the mental disturbances frequently evinced after admission. Owing to the great improvement in their mental state under treatment, we have never required the notice to be carried out.

"If my report of this method of treatment had not some drawbacks, it might be considered too favorable. Fortunately for our credit, there are some objections to it, but these are entirely physical.

"1. The full dose sometimes produces gastric troubles, flatulence, indigestion, gastrodynia, and loss of appetite. The drugs may be either lessened in quantity or stopped for a time, and the medicine should always be given after meals, and well diluted. After a little caution

in gradually increasing the dose, combined with careful dieting, the patients become inured to the medicine, and can take it without any effort or apparent immediate after-consequences.

"2. An erythema of the skin, that in some cases approaches an eczema, is frequently observed after the medicines have been taken for a time: this is sometimes very severe, and productive of much itching and irritation; in some cases it is intolerable, and the drugs may have to be stopped for a time, when it immediately subsides. In most cases we encourage the patient to persevere with the medicine, knowing that the skin disease gradually subsides, and that the cases that persevere are those most benefited, as a general rule. In this there are, however, some marked exceptions.

"Daily immersion in alkaline baths relieves the symptoms very much, and the inunction with vaseline or other simple lubricant is most useful when the medicine is left off for a short time until the eczema subsides: its resumption is not generally followed by the reappearance of the skin disease, or if it does appear, its severity is much reduced.

"3. Loss of hair is a more striking, more unexpected, and fortunately much rarer phenomenon."

The Training of Nurses in the Methodist Episcopal Hospital, Brooklyn.—The following appears in the *Fifth Annual Report* for 1892:

"This course extends over a period of two years, and includes the outlines of anatomy and physiology, hygiene, general and special medical nursing, general and special surgical nursing, and more particularly of: 1. The dressing of blisters, burns, sores, and wounds; the application of fomentations, poultices, cups, and leeches. 2. The administration of enemata and use of catheter. 3. The management of appliances for uterine complaints. 4. The best method of friction to the body and extremities. 5. The management of helpless patients; making beds; moving, changing, giving baths in bed, and preventing and dressing bedsores. 6. Bandaging, making bandages and rollers, lining of splints. 7. The preparing, cooking, and serving of delicacies for the sick.

"Instruction is also given in the best practical methods of warming and ventilating sick-rooms in a proper manner. Pupils are taught to take care of rooms and wards; to keep all utensils perfectly clean and disinfected; to make accurate observations and reports to the physician of the state of the secretions, excretions, pulse, skin, appetite, temperature of the body, intelligence—as delirium or stupor—breathing, sleep, condition of wounds, eruptions, formation of pus, effect of diet, or of stimulants, or of medicines, and to learn the management of convalescents.

"The instruction is given by the attending physicians and surgeons, the senior interne of the hospital, and the supervisor of nurses.

"The teaching includes frequent stated lectures, recitations and demonstrations in the class room and at the bedside of the patients. All the nursing of the hospital is done by the pupils under the direction of the supervisor of nurses. Examinations are made at stated periods to test the proficiency of the pupils.

"Those wishing to obtain this course of instruction must themselves apply to the supervisor of nurses at the hospital, Sixth Street and Seventh Avenue, Brooklyn, N. Y., either in person or by letter, upon whose approval they will be received for two months on probation. The preferable age for candidates is from twenty-five to thirty-five years. The applicant should send, with answers to the paper of questions, a letter from a clergyman testifying for her good moral character and from a physician stating that she is in sound health. Applicants are received at any time during the year when there is a vacancy, except in July and August. During the months of trial and previous to permanent acceptance as a pupil nurse, the applicant must be prepared for an examination in reading, penmanship, simple arithmetic, and English dictation. The examination is to test the applicant's ability to read aloud well, to write legibly and accurately, to keep simple accounts, and to take notes of lectures. This amount of education is indispensable, but the applicants are reminded that women of superior education and cultivation, when qualified as nurses, will be preferred to those who do not possess these advantages.

"During the months of probation the pupils are boarded and lodged at the expense of the hospital, but receive no other compensation. They are not expected to wear the uniform of the hospital, but must come prepared with dresses of washable material for use in the hospital. All clothing must be plainly marked. Those who prove satisfactory will be accepted as pupil nurses after signing the following agreement:

"I, the undersigned, hereby agree to remain two years in the Methodist Episcopal Hospital as a pupil nurse, and to obey the rules of the institution."

"At the end of the first six months the record and work of each pupil are again carefully scrutinized as to her fitness for the vocation of nursing, and the right is reserved by the authorities of the hospital to terminate then the connection of the pupil with the school if it should seem to them best.

"The connection of any pupil with the school may be terminated at any time by the superintendent of the hospital for inefficiency, misconduct, or a generally unsatisfactory record.

"The pupils will reside in the Nurses' Home, and serve for the first year as assistants; the second year they will be expected to perform any duty assigned to them by the supervisor, either to act as nurses in the hospital or to be sent to private cases among the rich or poor. Board, lodging, and washing will be furnished without charge.

"An allowance of \$8 a month is paid during the first and \$12 during the second year. The sum is intended for the dress, text-books, and other expenses of the nurse in connection with her work, and in nowise as wages, it being considered that the education given is a full equivalent for their services. They are required, after the months of probation, when on duty, to wear the dress prescribed by the institution—white cap and apron and linen collar. The day nurses are on duty from 7 A. M. to 7 P. M., with the exception of time for exercise or rest. They are also frequently given an afternoon, and have a right to a part of Sunday. A vacation of two weeks is allowed each year.

"When the full term of two years is ended, the nurses thus trained can choose their own field of labor. On leaving the hospital they will, after passing a final examination, each receive a diploma signed by the president and secretary of the board of managers, and president and secretary of the medical board.

"To secure success in prosecuting this course of training for the vocation of a nurse, there is needed, in addition to a healthy body, an alert mind and a fair education, a capacity for punctuality, strict obedience to orders, and exact statement. But these military virtues must be wisely tempered with womanly pity and tenderness; not, however, degenerating into a good-nature which will work harm to her patient. A vast ability for painstaking and careful attention to details should form part of her equipment. As a necessary consequence, she should possess an exalted enthusiasm for her work and a broad conception of her honorable mission, in order to overlook the thousand and one unpleasant and trying features of her daily life.

"Her personality—mental, moral, and physical—should be bright, pure, and wholesome. Personal comfort should be sacrificed and selfishness obliterated while the nurse is fulfilling her duties. 'The gentler born the maiden, the more bound to be sweet and serviceable.' Great tact and discretion must be her inheritance. The secrets of her patients she must guard as do the clergyman, lawyer, and physician. Coolness and self-possession in emergencies are necessary. A desire to study, to learn, a healthy unrest, should distinguish her mental attitude. In short, allowing for the natural imperfections of human nature, the trained nurse should have an ideal, which she must patiently strive to emulate—a perfect woman nobly planned; plus the advantages of special education and culture. Nor must she be discouraged, for training, self-discipline, and practice will do wonders toward the attainment of the goal.

"Those wishing to engage in the more earnest work of life, with a taste for this essentially woman's work, can find no better field for their energies than this of nursing the sick. It should not be lightly undertaken, however, as without the spirit of consecration there is often much that is distasteful and wearisome in the work that has to be done."

Contravention of the Oath of Hippocrates.—In that memorable oath which the Father of Medicine made binding on all who entered on the study and practice of the healing art there is no passage more honorable in its conception or more solemn in its language than that which relates to the confidence between the patient and his medical attendant. Civilization in its most elevated and refined developments has not improved upon it—therein affording another confirmation of what in the *Novum Organum* Bacon observes of physical and moral science, that whereas the former is susceptible of infinite advance so that no limit can be put to its many-sided evolution, the latter attained its maturity early, inasmuch that in nearly all essentials it may be regarded as stationary. The passage in question runs as follows: "If in treating a patient, or even independently of treating him, I shall have seen or heard anything as to his life which ought never to be spoken of in public, on this I shall preserve silence, deeming particulars of this nature as not proper to be revealed" (*ἀρρήτα ἡγούμενος εἶναι τὰ τοιαῦτα*). To the honor of the profession be it recorded that the instances are rare indeed where this obligation to secrecy has been violated—an honor none the less notable that in the words of a profound student of human nature "a man, in order to save his life, will tell a physician or surgeon what he would not disclose to a lawyer to save his fortune, or to a clergyman to save his soul." Rare, therefore, as are the violations of this reticence on the medical practitioner's part, it is not to be wondered at that the penalties attaching to them are so severe or that the retribution with which a deplorably indiscreet physician has just been visited abroad receives such publicity in the European press. Two months' imprisonment and the withdrawal of his medical diploma for five years are announced as having been meted out to him for his having "trahi le secret médical, c'est à-dire, raconté à des tiers les maladies dont quelques-uns de ses clients étaient atteints." Besides this professionally disqualifying punishment he has been sued in the civil court by several of the patients whose confidence he had abused and has been condemned to pay damages amounting in some cases to two thousand marks, in others to four hundred, according to the gravity of the offense. To live down such a blot on professional fair fame can be no light undertaking. Indeed, as a contemporary puts it, "il ne lui reste plus qu'à s'expatrier, car il ne retrouverait pas un malade à soigner dans son pays." So accurately, it appears, did the Father of Medicine anticipate the moral standards of the nineteenth century, so sagaciously has he formulated a code of professional honor which humanity, after more than two millenniums of experience, can but interpret and apply.—*Lancet*.

The late Dr. John William Branham.—The surgeon general of the Marine-Hospital Service has issued the following circular, dated August 28, 1893:

"To the Medical Officers and Acting Assistant Surgeons of the United States Marine-Hospital Service:

"It becomes my painful duty to announce the death from yellow fever of Assistant Surgeon John W. Branham, at Brunswick, Georgia. He was taken ill about August 10th while in the performance of quarantine duty at Brunswick, and died on the afternoon of the 20th.

"Assistant Surgeon Branham was born in Walker County, Georgia, October 27, 1868, and his early education was derived from the schools of his native State. When he was thirteen years of age he moved to Baltimore, Md., and received a general education at the Baltimore City College. He then studied medicine at the College of Physicians and Surgeons, Baltimore, and graduated at the head of his class from that institution March 13, 1889. During this time his elder brother, Dr. J. H. Branham, of Baltimore, was his preceptor. After graduation he first served as resident physician at the City Hospital in Baltimore during part of 1889 and 1890, and afterward was assistant quarantine physician for the port of Baltimore from May until November, 1891. Leaving Baltimore, he moved to Kempsville, Va., where he practiced medicine until entering the medical corps of the Marine-Hospital Service. At the examination of candidates, held in Washington, D. C., in March, 1893, Dr. Branham passed first among twenty-two applicants, and was commissioned assistant surgeon April 19, 1893, and on April 21st was ordered to the Marine Hospital, Stapleton, Staten Island. On the 25th of July Assistant Surgeon Branham was ordered to Brun-

wick, Ga., to take charge of the quarantine at that port, where he remained in the active discharge of that duty until he was stricken down with yellow fever.

"As an officer, Assistant Surgeon Branham was held in high esteem both by those under whom he served and by the department. His ability was fully recognized, and he was chosen for the important duty of reorganizing the quarantine of Brunswick and establishing it upon a firm sanitary basis, the local quarantine at that point having proved to be insufficient. Through his death the service has lost an able officer.

"Personally, Assistant Surgeon Branham was a man whose general education and medical attainments won for him the highest respect, and his social relations with his brother officers and others were characterized by a manliness of deportment and gentlemanly bearing that won the affection of all.

"I have extended to his family the sympathies of the corps."

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

STUDIES IN INFANT FEEDING.*

By HENRY DWIGHT CHAPIN, M. A., M. D.,

PROFESSOR OF DISEASES OF CHILDREN
AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

THERE are certain requisites for an infant's food before it can be recommended for general use. Thus, it must be readily procurable under the common and ordinary conditions of life; it must be digestible, nourishing, and fairly cheap. The mixing or preparation of such a food must not be too complicated. The conditions here mentioned can only be met by employing cow's milk, more or less diluted or altered, according to the necessities of the case. The following paper contains no new principles, but is rather a record of experience in the simplest manipulation of cow's milk to make it most acceptable to the infant's stomach and digestion. The clinical experience has been principally derived from the babies' wards of the New York Post-graduate Hospital, where the infants are subjected to close scrutiny and constant weighings during periods varying from several days to as many weeks, and sometimes even longer. Those who have had a large dispensary and hospital experience in artificial infant feeding among the poor can not have failed to notice the frequent tendency to atrophy. This is often so extreme as to cause death. Even in cases not so marked there is almost universally present a condition of underweight. Many unfavorable hygienic conditions favor this deplorable result, but the principal cause is the nature and quality of the food that is administered. This grave tendency toward atrophy should constantly be borne in mind in all studies bearing on artificial infant feeding.

The milk as ordinarily delivered on a given morning in New York, and doubtless in other large cities, consists of a mixture resulting from the milkings of the previous morning and the night preceding, thus being from twenty-four to thirty-six hours old. If the milk dealer knows his farmers, he can sometimes induce them to put the twenty-four hours' milk in a can by itself, which is a gain as regards infant feeding. What is urgently needed is more scrupulous cleanliness in the handling of the cows and milk upon the farm, and quicker and more frequent methods of transportation of the milk to town in order to represent a real gain in the feeding of infants. It need hardly be mentioned that the average milk from a herd of cows is better and safer than the traditional one cow's milk. As soon as the milk is received in the early morning it is put in a tin pail or wide-mouthed vessel that is covered and allowed to stand in a cool place for three hours. The top half only of this milk is to be administered to the infant, as advised by Dr. Meigs. This top portion is best separated by being carefully dipped off by a cup or ladle. If decanted, both layers of the milk will become mixed by the lower part

rising when the vessel is tipped. At the babies' wards a long glass cylinder is employed, which is graduated and furnished with a stopcock at the bottom. After standing the required time, a distinct difference is noted in the two portions of the milk, which are easily separated by drawing off the lower half and reserving the remainder for the infant's use. In order to learn exactly what difference the simple process of standing would make, the two parts of the milk were analyzed with the following results: One gallon was drawn from the bottom of the cylinder, well mixed, and a sample taken which showed:

Fat (1)	3.0	per cent.	Total solids (1)	12.29	per cent.
(2)	3.0	" "	(2)	12.44	" "
(3)	3.1	" "	Mean	12.36	" "
Mean	3.03	" "		3.03	

Solids not fat 9.33 " "

The upper portion of the milk, one gallon, was well mixed and a sample showed:

Fat (1)	4.9	per cent.	Total solids (1)	14.01	per cent.
(2)	4.8	" "	(2)	14.02	" "
(3)	5.0	" "	Mean	14.015	" "
Mean	4.9	" "		4.9	" "

Solids not fat 9.115 " "

This analysis shows that practically the only change on standing is a rise of fat. This, of course, slightly raises the percentage of other solids in the lower portion, since the abstraction of any constituent from a mixture raises the percentage of all the remaining constituents. The upper portion contains, roughly, five parts of fat for every three parts contained in the lower portion. The minimum of fat allowed for genuine milk is three per cent. The increased amount of fat thus procured, in the part of the milk to be used, represents a real gain in feeding the infant. The newer analyses of milk do not confirm the older view that cow's milk contains more fat than human milk, but rather the reverse. Thus Professor Leeds found, upon analyses of forty-three samples of woman's milk, an average of 4.013 per cent. of fat, while upon analyses of eleven samples of whole market milk the average percentage of fat was only 3.75 per cent. König finds the average of fat in woman's milk to be 3.90 per cent., and in cow's milk 3.66 per cent. Professor Rotch places the average of fat in both cow's and woman's milk at four per cent. As cow's milk has to be more or less diluted before being administered to the infant, the necessity of starting with a preparation that is rich in fat will be apparent. The next step to be taken is to see that all fermentation in the milk is stopped. Cow's milk, as ordinarily procured, must be treated for its biological as well as its chemical properties. The well-known process of sterilization aims to fulfill this object. Partial sterilization, or pasteurization, to the point of killing the germs only, is necessary and desirable. The high and continuous temperature required to destroy spores produces various unfavorable changes in the milk. Practically, all that is required is to submit the milk to sufficient heat to destroy the bacillus of lactic-acid fermenta-

* Read before the Section in Pædiatrics of the First Pan-American Medical Congress.

tion which causes the souring of milk. This bacillus has been described as of small oval form, occurring singly and in pairs. It is easy, by prolonged and repeated applications of high temperature, to keep milk indefinitely from souring. By reheating once or twice, it can be kept for months without any sign of acid fermentation. Such milk, however, is by no means fit for administration to the infant, as the fat collects in masses and changes have taken place in the albuminoids. The casein is altered, the milk remaining more or less liquid in the stomach, as the action of the stomach acids and of the lactic ferment on the casein of sterilized milk is incomplete. Analyses of excrement show more nitrogen and more fatty acids after feeding with sterilized milk than with raw milk. Not only is the digestibility of the milk diminished by long heating, but the necessity for it indicates so many bacteria that their excreta, which can not be rendered harmless by heat, may cause poisoning. It has been found that milk well sterilized will, after a certain interval of time, undergo a species of decomposition with an alkaline reaction. Dr. Koplik states that the alkaline fermentation has not been investigated to such an extent that we can with certainty pass upon the deleterious or non-deleterious effects upon infants of the products of this decomposition. It is enough to know that it takes place, and certain alkaloidal elements are very slowly but surely produced. Accordingly, this writer condemns the storage of sterilized milk and its subsequent use after prolonged periods, and I concur in this opinion. Simply sufficient heat must be applied to the milk to keep it sweet until the next supply can be procured. An ordinary double boiler, such as is found in every kitchen, will meet all the requirements of average heating. The Arnold steam cooker may prove more convenient, and Freeman's pasteurizer is handy and efficient. As a rule, fifteen minutes' heating is sufficient with the bottles well plugged with cotton. The addition of a one-per-cent. solution of peroxide of hydrogen is a safe preservative of milk for some hours, when heating is undesirable or not convenient. If more scrupulous care were exercised at the source of the milk supply, and the impurities completely separated by the centrifugal process, in the great majority of cases no means at all for preservation need be employed, and an advance in this direction is urgently needed.

We still have facing us the old and difficult problem of how to act best upon the tough, leathery curds of cow's milk as to make them most acceptable to an infant's weak digestion. Not only are the albuminoids much greater in amount in cow's milk, but the portion coagulable by acids is greater than the non-coagulable part, while in woman's milk the non-coagulable part much exceeds the coagulable portion. Hence the dilution of cow's milk, while reducing the albuminoids to a proper percentage, does not necessarily render the clot sufficiently soft to be readily digested by the infant. The question whether the size of the curd stands in any relation to the substance used as the diluent has been disputed. It has been taught that by adding gruels of the cereal grains to the milk the clot is mechanically attenuated. Dr. Rotch states, on the contrary, that practically the size of the curd depends simply on the dilu-

tion of the albuminoids and not upon the particular menstruum used.

Clinical results, however, point plainly to the utility of diluting with barley water, except in very young infants, and I believe the beneficial effects are, to a certain extent, due to a lessening of the compact character of the clot. In order to test this, the following experiment was made by Dr. Eiloart: Equal parts of milk and barley water were taken, and grm. 0.1 of hydrochloric acid was added to 100 c. c. of the mixture. This strength was employed, as in gastric juice there is grm. 0.2 of hydrochloric acid to 100 c. c. of fluid, which, on dilution by the contents of the stomach, is weakened somewhat, so that grm. 0.1 is a fair estimate for the experiment. Some albumins require 0.2 per cent. hydrochloric acid added to pepsin in artificial digestion to obtain the best results, but casein and vegetable albumin are digested best by 0.1 per cent. of hydrochloric acid.* This experiment showed the casein formed in finely divided clots. Next, equal parts of plain water and cow's milk were taken and grm. 0.1 hydrochloric acid added to 100 c. c. of the mixture. This showed larger clots than before. A number of repetitions gave similar results, using various coagulating agents when plain water and thin gruels were used as comparative diluents. When rennet alone was used as the coagulating agent, the results were so different from those obtained when hydrochloric acid was used with the rennet that recourse was had to the stomach itself, with results given in the accompanying paper by Dr. Eiloart. The disadvantage in the employment of wheat or barley flour consists in the large proportion of starch contained in these grains, which may be great in very young infants. This starch may be rendered more soluble and easy of assimilation by heat or diastatic action. In many cases the effect of prolonged heating upon barley and wheat flour seems to have a beneficial effect, particularly when there is a tendency to diarrhoea. The good results of the old flour ball, made by prolonged boiling of the wheat flour in a bag, have long been recognized. But the heat so applied does not produce its beneficial effect by chemically changing the starch, but probably from some physical alteration which renders it more effective as a diluent.

The effect of dry heat upon starch is to produce changes into soluble starch, retrodextrin, achroodextrin, and finally a small percentage of dextrose and maltodextrin.† The higher dextrins are more soluble. Starch does not begin to dextrinate until 250° F. is reached, and this temperature should be maintained for several days if there is any quantity to be changed. At between 350° F. and 400° F. dextrination may take place in a few hours. It is evident that such a high temperature can not be maintained by any domestic process. If put into an oven the flour will soon be scorched or burned. An interesting experiment was made by Dr. Eiloart upon barley flour that had been heated for a week in an ordinary double boiler. The water in the under vessel was allowed to boil for a week, with the ex-

* Hammarsten. *Lehrbuch der physiologischen Chemie*, 1891.

† Stohmann and Kerl. *Muspratt's Chemie*, Bd. xi, Braunschweig, 1889.

ception of a few hours at night, the dry flour in the upper vessel being thus exposed to as high a constant temperature as possible under the circumstances. An analysis of the unheated meal taken from the same barrel yielded two thirds more sugar and one quarter more dextrin than the heated meal. The cause of this is that the diastase, whose function it is to convert starch into sugar and dextrin, is partially paralyzed by heat, the ferment undergoing this change at about 175° F. This method of acting upon the starch was accordingly abandoned, and the necessary change effected easily and quickly by means of diastase. Starch treated with diastase is split up quickly into maltose and dextrin, and the longer the action is continued, the higher dextrin will be formed, such as achroodextrin and maltodextrin. After a number of experiments and analyses, Dr. Eiloart devised a receipt for which I am indebted to him, and which has been used at the babies' wards, consisting of a mixture of barley or wheat flour treated with diastase,* the temperature of digestion being regulated by the addition of hot and cold water in proper proportion. The complete description of the process will be found in Dr. Eiloart's paper.

This food can be easily and cheaply prepared in any household, and while the starch is changed to more soluble forms, there is not an excess of sugar. Herein it is superior to the various Liebig's foods. The nutritive value of the albuminoids is likewise not lost sight of.

Either barley, wheat, or oatmeal may be thus treated, the principal difference being the varying proportions of fat contained in these grains. According to Dietrich and König, the percentage of fat is as follows: Barley, 2.09; wheat, 1.55, and oats, 6.09. This may be borne in mind in prescribing for diarrhœas and the various forms of indigestion.

The effect of malt upon milk is to favor its digestion and assimilation. Garup Besanez, a German authority on malt, has found a ferment in the germinated seed of vetches, hemp, flax, and barley, which very energetically converts starches into grape sugar, and albuminous substances (fibrin) into peptones. It was afterward found that diastase has no action upon albuminoids, but peptase—which is generated in germinating grain at the same time and under the same conditions as diastase, and practically they can not be separated—acts upon proteids slowly at low temperatures. This substance is an analogue of the vegetable proteolytic ferments found in pineapple juice and the papaw plant.

The actual results obtained from the use of food thus prepared in the babies' wards have been good, considering the class of cases treated. During May, June, and early July thirty-seven infants suffering from various degrees of gastro-intestinal irritation and inflammation, and from one to ten months old, were thus fed. Seventeen increased slightly in weight after a week or so, sixteen lost a little in weight, and four remained stationary. As is well known, the loss of weight in gastro-intestinal affections during infancy is usually well marked, and is exceptionally rapid in hospital

and institution infants. So extremely susceptible are young infants to hospitalism that they invariably lose weight after a certain interval of time, and will die of inanition under any system of artificial feeding unless removed in season. A baby admitted May 26th, one month old, having had convulsions from gastro-intestinal irritation, exemplifies this fact. The weighings are registered as follows: On admission, six pounds one ounce; May 30th, six pounds four ounces; June 2d, six pounds six ounces; June 6th, six pounds eight ounces; June 9th, six pounds five ounces; June 13th, six pounds two ounces; June 16th, five pounds and ten ounces; discharged. The gastro-intestinal irritation subsided and the baby did well on its food, but at the end of two weeks it began to show the effects of hospitalism, although there was no vomiting or other sign of indigestion. When sterilized milk, diluted to the proper point with water, limewater, or plain barley water, has been used, there is almost invariably a steady and slow loss of weight from the first, so that the change so often noted upon malting the preparation can not fail to be gratifying. Dr. Judson C. Smith, who is the district visitor for the hospital, seeing a certain number of the patients after they have been discharged, tells me he has used the extract of malt to peptonize milk about a year, both for infants and adults, with very satisfactory results. Babies from four months to one year old, when losing weight on other methods of feeding, have usually gained flesh and improved in every way on milk prepared with malt. One tablespoonful of malt is added to a pint of milk, which is heated from twenty to thirty minutes and then brought to the boiling point. The milk is then diluted with water according to the age of the infant.

A FOOD FOR INFANTS, WITH EXPERIMENTS, CHEMICAL AND PHYSIOLOGICAL.*

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THE experiments here described were intended to throw light upon two problems. The first was the formation from cow's milk of a curd resembling in fineness that from woman's milk. The importance of this seems evident,† and Uffelman‡ has shown that in artificial digestion the proportion of peptone formed is greatest when the curd is loosest. He recommends mixing cow's milk with three fourths its volume of 0.2 per cent. hydrochloric acid in order to make the casein like that of human milk.

Munk,§ having tried Scherff's process of sterilization (heating to 100° C. under a pressure of three atmospheres), states that milk so treated clots *in the stomach itself* in

* Maltine was the preparation here yielding the diastase.

* Read before the Section in Pædiatrics of the First Pan-American Medical Congress.

† Ellenberger and Hofmeister, however, object to the fine curd of sterilized milk, because it may pass too quickly through the system and thus escape complete digestion (*Molkerei Zeitung*, 1892, 6).

‡ Pfüger's *Archiv*, 29, 399.

§ *Deutsche med. Woch.*, 1881, No. 36.

flocks like woman's milk, not in compact masses like ordinary cow's milk.

It seems unlikely, however, that these methods will come into general use, and the following work has been confined to testing diluents which are everywhere available.

The result of a preliminary investigation was surprising, for it appeared that the fineness of the curd depended more on the curdling agent than on the diluent mixed with the milk. Thus, with rennet, mixture A curdled finer than mixture B, while with hydrochloric acid, one per cent., mixture B curdled finer than mixture A.*

Hence the test-tube experiments, which have constantly been quoted to show the effect of various diluents, must be abandoned, and the infant's stomach itself must be consulted to decide what mixture will curdle finest in that stomach. Accordingly, the mixtures to be tested were administered to infants, and after a short interval withdrawn by means of the stomach pump. I am indebted to Dr. Chapin for the opportunity of carrying out these tests in the babies' wards of this hospital.

In the following table I have used figures to indicate degrees of fineness of clot, calling the finest curd 1:

TABLE I.—*Showing Fineness of Clot and Acidity of Stomach Contents after feeding with Milk and Various Diluents. Fresh Milk was used except where Sterilized is mentioned.*

Throughout this work the regularly prescribed malt preparations were used as the source of the diastase; + means a small dose, ++ a full dose.

Experiment No.	Date.	Name.	Age.	Health.	Taken.						Time before pumping.	Quantity pumped.	Fineness of clot.	Acidity calculated as HCl.	
					Milk.	Water.	Barley water.	Wheat germ.	Wheat, Recipe II.	Diastase.				Total.	Per cent. of quantity pumped.
	Feb.		Mths.								Min'tes.	C. c.			
1	15	George Carlson.....	8	Good (adenitis).....	50	50	..	..	..	..	1	117	3	·050	·0427
2	15	S. Morris.....	2	Bad (syphilis).....	50	50	..	..	..	..	1	12	3	·0109	·09
3	15	Annie Riker.....	6	Medium (inanition)...	50	..	50	..	..	..	1	109	2	·047	·0438
March															
4	4	Ed. Scores.....	14	Good (eczema).....	100	..	..	..	..	+	1	15	1	....	....
5	4	S. Morris.....	2½	Fair (syphilis).....	30	..	30	..	..	..	1	27	2	....	....
April															
6	25	Ab. Sayres.....	2½	Good (cured).....	st'd 100	100	..	..	..	+	10	124	3	·137	·0905
7	25	Henry Hasbrook.....	6½	" ".....	st'd 100	100	..	..	..	..	10	140	1	·065	·0467
8	29	Ab. Sayres.....	..	" ".....	st'd 100	100	..	..	..	..	10	108	3	·093	·086
9	29	Henry Hasbrook.....	..	" ".....	st'd 100	100	..	..	..	+	10	97	2	·061	·063
May															
10	3	Ab. Sayres.....	..	" ".....	70	70	..	..	..	++	20	28	2	·017	·060
11	3	Walter Grandman.....	6	Good (cured).....	100	100	..	..	..	..	15	9·5	2	·0087	·092
12	8	Ab. Sayres.....	..	" ".....	51	51	..	..	..	..	15	86	3	·063	·073
13	8	Walter Grandman.....	..	" ".....	60	60	..	..	..	++	15	44	3	·0289	·066
14	8	Frances Collins.....	1½	Marasmus.....	35	35	..	..	..	++	20	65	3	·052	·083
15	8	Louisa Beehl.....	8	Good (gastro-enteritis)...	54	54	..	..	..	..	20	59	3	·081	·053
16	19	Joseph Kelo.....	3	Good (phimosi).....	71	..	..	71	..	..	2	70·5	3	·046	·066
17	19	Joseph Lobe.....	2½	Fair (erythema).....	65	..	65	..	..	..	2	65	2	·031	·047
18	19	Frances McIntyre.....	3	" ".....	45	..	45	..	..	..	3	67	2	·046	·069
19	22	Frances McIntyre.....	..	" ".....	85	..	..	85	..	..	2	60	1	....	....
20	22	Joseph Lobe.....	..	" ".....	100	..	..	100	..	..	1	135	2	....	....
21	22	Mary Bailey.....	3	Marasmus.....	75	..	75	..	..	..	14	59	2	....	....
22	22	Joseph Kelo.....	..	" ".....	75	..	75	..	..	..	4	7	3	....	....

The figure 4, indicating the very coarse clot sometimes obtained with hydrochloric acid (0·1 per cent.), is absent from the record of stomach clots, although the percentage

* Mixture A was equal parts of milk and water; mixture B was equal parts of milk and barley water. With a mixture of hydrochloric acid and rennet the result was the same as with the acid alone. In every case the volume curdled was 100 c. c.; very small quantities fail to show the differences in the curd.

of acid in the stomach, calculated as hydrochloric, sometimes rises almost to 0·1 per cent.

The chief conclusion to be drawn from the stomach experiments is that the coarseness of curd increases with the percentage of acid. Thus the finest curd (called 1), which was only once obtained, occurred when the acidity was 0·0467 per cent.; the curd next in fineness occurred in six cases in which the mean acidity was 0·062 per cent.; whereas for curd 3 (rather coarse) the acidity averaged 0·072 per cent. (mean of nine cases).

So far we have left out of account the diluent used. If we arrange the results so as to show the number of times a given diluent produced a curd of the second or third degree of fineness, we find that water gave clot 2 once, clot 3 four times; barley water gave clot 2 three times; diastase, with or without cereals, gave clot 2 twice, clot 3 four times.

So far the results proclaim barley water to produce the finest and water the coarsest curd. But when we take into account the acidity in the different cases, we find it to average in the three barley-water experiments only 0·053 per cent., while in the four water experiments it is 0·077, and in the case of the diastase preparations, which yielded curds

almost as coarse as the water mixtures, the acidity is nearly as high—viz., 0·071 (average of the six cases).

The good results apparently due to the barley water may, therefore, be due in reality to a low percentage of acid. On the other hand, further experiments may show that barley water itself causes the low percentage of acid.

The influence of the concentration of the curdling agent is well seen in the following experiment, made with

an adult: A mixture of 500 c. c. milk with 500 c. c. water at blood-heat was taken. Two minutes afterward 360 c. c. were pumped out from the stomach; six minutes later 400 c. c. more were removed; eight minutes later the rest was removed.

The first portion was curdled so fine that close examination was needed to see that it was not homogeneous. The second portion was fine, but coarser than before. The third portion consisted of yellow liquid with some clots—quite coarse; the gastric juice was no longer diluted by excess of milk.

Experiments with Cereals.—Whatever be the part played by barley water in the stomach, it has made good a place in infant feeding, which indicates that benefit is derived from its use. But it seems probable that any such benefit is largely neutralized by the great proportion of starch which all cereals contain and which the infant economy is ill adapted to digest.

It is true that infants' foods may be bought in which the starch has been dextrinized by heat; but these are expensive. The object was then to devise a household process for preparing at a minimum cost, and with materials everywhere available, a digestible food containing with the albuminoid constituents of the grain carbohydrates in a soluble form, and but little of the insoluble starch. At the same time excess of sugar was to be avoided. This necessitated the conversion of the starch into dextrin, or into dextrin with a moderate proportion of maltose. Attempts to dextrinize the starch by heat showed that this method is not adapted for household use. Barley cakes baked many hours yielded only 23·3 per cent. of soluble matter. Rusks ("Zwieback") as bought were further baked, but only 16 per cent. could be made soluble. To facilitate the dextrinization by providing an acid, barley cakes were made with buttermilk and well baked, but the soluble matter was then only 20·07 per cent. Rusks moistened with buttermilk and baked at 120° C. yielded 18·88 per cent. of soluble matter.

These results necessitated a resort to diastase as the converting agent. O'Sullivan has shown that maltose and dextrin are the only products of the action of diastase on starch, and that the proportion of maltose to dextrin depends on the temperature. This proportion may be kept down to about eighteen per cent. by employing a temperature just below that which destroys the diastase and by stopping the action before the diastase converts the dextrin first formed into maltose. To adjust the temperature, hot and cold water were mixed in varying proportions. The temperature of the hot water was the highest which can be attained in the inner vessel of an ordinary double boiler of tin or enameled iron when the water in the outer vessel is kept boiling; this temperature does not vary much with the size of the boiler and is about 91° C.

The diastase was allowed to act on gruels made with starch, with wheat flour, with barley meal, and with oatmeal. The line of action, the quantity of water, and the temperature (proportion of hot to cold water) were varied, and more than twenty analyses were made to determine the proportion of soluble matter and of maltose formed in each

case. As the result of these experiments a most simple process was arrived at, by which in any kitchen a cereal food may be made containing three fourths of the solid matter in a soluble form and having more or less sugar (maltose) as desired.

For a food containing about one third of the solid matter in the form of maltose, the following recipe may be used:

RECIPE I.—Materials.—Wheat flour or barley meal, two ounces (two tablespoonfuls heaped as high as possible); water, fifty-six ounces (a quart and three quarters); extract of malt, half a teaspoonful or a small teaspoonful.

Process.—With thirty ounces (a scant quart) of the water make the flour into a gruel, boiling ten minutes in a double boiler. Take out the inner vessel and add the rest of the water cold, the malt extract being dissolved in the last few ounces added. Let it stand fifteen minutes. Put back the inner vessel and heat again in the double boiler fifteen minutes. Strain through a coffee strainer of wire gauze.

If for any reason it is desirable, and in cases of diarrhœa, to give a smaller proportion of maltose, the following recipe is used, and we get a food containing only one fourth of the solid matter in the form of maltose:

RECIPE II.—Materials as in Recipe I. Proceed as before, but reserve only one pint of the water for adding cold. After adding the cold water with the malt extract dissolved in the last few ounces of it, let it stand only three minutes instead of fifteen minutes. Then heat ten minutes in a double boiler and strain.

To make the gruel well and quickly, beat the flour with very little water. A little beating with little water is better than much beating with much water. Beat smooth, therefore, while the paste is still almost a dough; then add cold water to make a thin paste, and to this add the rest of the first part of the water boiling hot, with stirring. If these directions are followed, very few lumps will remain on the strainer; in fact, only about five per cent. of the meal need be lost in this way. The water in the outer vessel of the double boiler must be kept boiling throughout. Whichever recipe is followed, the food should be taken mixed with milk.

Digestion Tests.—*Cæteris paribus*, the more of a food is dissolved in the stomach, the more digestible is that food said to be. Therefore if we find in the stomach contents, after giving milk with the malted food, a larger proportion of soluble matter than when milk is given with unmalted food (due allowance being made for the larger proportion of soluble matter in the malted food itself), then we may say that the malted mixture is the more digestible of the two. In order to test this, experiments were made with three infants and the following results were obtained:

Ratio of Soluble to Total Matter in Stomach Contents:

	With Malted Food.	With Unmalted.
Subject 1.	0·65	0·58
" 2.	0·74	0·61
" 3.	0·58	0·64

The difference is appreciable (later results indicate that this was due to the short time allowed for digestion, which

TABLE II.—*Showing Proportion of Food found in Stomach after Various Periods of Digestion.*

A dash (—) under diastase indicates that none was given. A + indicates that the diastatic extract was used in the proportion given in the receipt.

Experiment No.	Date, July.	Food taken.			Found in stomach after time named.				Time, minutes.	Subject No. 1. Recipe No. II.	Subject No. 2. Subject No. 3.
		Volume, cubic centimetres.	Weight, grammes.	Diastase.	Total solids.	Undissolved solids.	Per cent. of food taken.				
							Total solids.	Undissolved solids.			
1	8	500	11·76	—	5·48	·62	46·6	5·3	40		
2	11	1,000	38·6	+	14·35	1·81	37·0	4·7	40		
3	12	1,000	30·24	—	13·2	2·39	43·7	7·4	40		
4	13	1,000	30·00	+	8·96	·67	29·8	2·2	40		
5	15	1,000	25·00	—	13·94	2·09	65·76	8·36	40		
6	15	1,000	25·00	—	10·5	1·3	42·0	5·2	24		
7	17	1,000	25·00	+	8·82	·56	35·28	2·24	22		
8	17	1,000	25·00	+	6·97	·69	27·88	2·76	24		
9	18	1,000	25·00	—	7·75	1·83	31·00	7·32	23		
10	19	1,000	24·4	—	7·6	1·7	31·1	7·0	23		
11	19	1,000	24·4	—	8·19	2·58	33·5	10·5	24		
12	20	1,000	24·4	+	11·44	1·08	46·7	4·43	24		
13	22	1,000	25·0	—	2·93	·62	9·72	2·48	40		
14	23	1,000	25·0	+	1·60	·14	6·4	·56	40		
15	25	1,000	25·0	—	7·06	1·00	28·24	4·00	40		
16	20	1,000	25·0	+	6·27	2·23	25·08	8·92	25		
17	22	1,000	25·0	—	9·48	2·55	37·92	10·2	25		
18	24	1,000	25·0	+	4·97	·66	19·88	2·64	30		
19	25	1,000	25·0	—	6·84	1·39	27·36	5·56	30		

Subject No. 1. Subject No. 2. Subject No. 3.
 Recipe No. II.

never exceeded a few minutes in the above cases). Experiments were next tried without the admixture of milk. A comparison was next made between the two foods without admixture of milk. The process now followed was this: The stomach of a healthy man was washed clean with lukewarm water—*i. e.*, the washing was continued till the water from the stomach ran perfectly clear. Then a definite measure of gruel containing a known weight of solid food was drunk in five equal draughts with an interval of a minute between each draught. After a certain time the stomach was again completely washed; the washings were made to a given volume. The total solid matter and the dissolved matter were determined; the difference gives the matter undissolved. Experiments were made with three men, all free from any disorder of the stomach. The food prepared with diastase was given one day and the plain gruel the next. Although the amount of either food disappearing in a given time varied considerably, the results were sufficiently concordant to decide the question at issue.

Experiments 1 and 2, which were made without previous washing of the stomach (no food having been taken since the night before), agree fairly well with the others, showing that the digestive process is not rendered abnormal by previous washing. In the case of Subject No. 1 the amount found in the stomach was constantly greater when the diastase was omitted; the percentage of food taken which was left in the stomach after forty minutes being, without diastase, 52·02; with diastase, 29·2. This means that of a hundred parts of food taken, 100 — 52·02 or 47·92 were absorbed in the one case and 100 — 29·2 or 70·8 in the other; so that with the diastase nearly half as much again was absorbed as without it. Of the solid matter found in the stomach, more than twice as much was found to be undissolved when the diastase was omitted as when it was used.

With Subject No. 2 a shorter time (twenty-four minutes) was given for digestion and no marked difference appeared between the two foods; but when the time of digestion was extended to forty minutes the malted food again asserted its superiority, the amount of this unabsorbed by the stomach being only one third the amount of the plain food unabsorbed. In the case of Subject No. 3 the difference in favor of the malted food was made manifest in twenty-five minutes. In every case, therefore, digestion was more rapid with the malted than with the unmalted food. Thus the physiological evidence confirms the chemical evidence in favor of the food prescribed. Finally, clinical experiments with the soluble food, made according to Recipe No. 1, have given as good results as any system of feeding employed at the babies' wards of the Post-graduate Hospital, as detailed in the accompanying paper by Dr. Chapin. It is intended to employ the method of quantitative stomach washing in other cases, as it seems adapted for testing foods and digestive ferments in general.

July 9, 1893.

Yellow Fever in Brazil.—"The British Consul at Santos, in a recent report, states that yellow fever has been present in Santos, Brazil, for the last five years. It has varied in intensity from time to time, but has never disappeared. The mortality among seamen during the height of the pestilence last year was enormous, and as all who died were buried within two hours, it was practically impossible to trace individuals. In many cases no register was kept even of their names. It is known, however, that men were dying for weeks at the rate of thirty to forty a day. At the time of the consul's report there were between two and three hundred cases of yellow fever in the hospitals. The danger was considerably aggravated by the fact that seamen during their enforced stay in Santos have every facility to obtain a very cheap and injurious form of rum called cascaca, and are thus encouraged to live a disorderly life. Recent regulations, however, have considerably alleviated their condition, since they are now permitted to be discharged from the ships on which they arrive, and to take ship on outgoing vessels at the first opportunity. The consul also states that small-pox is extremely prevalent in Santos."—*British Medical Journal*.

MALARIAL FEVER IN INFANTS AND CHILDREN, FROM A STUDY OF THE PLASMODIUM MALARIE.

By HENRY KOPLIK, M.D.

THOUGH malarial fever in the adult has been one of the most favored themes of investigation in recent years, there is little or no work constructed upon modern data which treats of the disease as it occurs in children. The discovery of Laveran in 1880 and the immense field of knowledge opened up by it has not been utilized in the special field of diseases of children. It is difficult to account for this. The literature of malarial fevers and the *Plasmodium malariae* is too vast to attempt its review within the limits of this article, and such a review would serve no ulterior purpose. Laveran, Golgi, Marchiafava and Celli, Giuanieri, and in our country Osler, Councilman, and James, have drawn in their train no less than two hundred and fifty writers upon the *Plasmodium malariae*, as can be seen by consulting the literature recently collected by Mannaberg.

Mode of Investigation.—It has been the custom of the writer, in all cases of suspected or real malarial disease which have presented themselves in his practice within the past two years, to examine the blood with a view to making a diagnosis. In this way a large number of cases have been subjected to study and been proved to be not malarial infection, but various other diseases, with prognoses of slight to serious moment. Of this large material the cases which accompany the paper have been sifted. The temperatures, spleen, and general status have all been carefully noted. It was of interest to see how closely certain infantile maladies could simulate malarial fever. The various methods of blood preparation—Laveran, Plehn, Marchiafava, and Celli—have been tried by the author. The following method was finally adopted as yielding uniform and invariable results: The blood in most cases was obtained from the finger tip by puncture; in exceptional cases from the spleen by means of a clean hypodermic exploring needle. The blood was examined when possible in a fresh condition by placing a drop on a slide, covering with a cover glass, and without a heated stage, studying under the microscope. This was followed as a diagnostic method, and in a busy dispensary or clinic is not always feasible. In such cases, where time is lacking, the blood is spread rapidly upon a dozen or eighteen cover slips by the Ehrlich method and with the forceps used by him for this purpose. The blood is allowed to dry in the air protected from dust. The blood is then placed upon the Ehrlich brass plate and heated for an hour or an hour and a half. The cover glasses are then stained in a very dilute solution of methylene-blue. Eosin is not used, as some varieties decolorize the blue and thus introduce an element of uncertainty. The above method has the advantage of simplicity, and with a little practice is easily attained and absolutely reliable. The blood is heated at the Ehrlich temperature above the boiling point on the plate (120° C.). The variety of dye is important; some blue does not stain. Grüber's powder blue, soluble in alcohol, is used. A few drops of the saturated solution in alcohol are added to an ounce of water. The cover glasses should not be deeply

stained, as then certain pictures are lost. They are repeatedly washed in water and then dried without heat in the air. Heat decolorizes. By this method the blood cell is well hardened and its protoplasm and hæmoglobin stained more certainly than when hardened with alcohol, sublimate, or osmic acid. If desired, also part of the specimens may be stained by the Ehrlich anilin methods, to study other appearances, if present. The red blood-cells in malarial cases show the plasmodium in blue, the protoplasm as yellowish-green or colorless rings if anæmic, as the case may be. If the Ehrlich dyes are used—aurantia, orange G., etc., preferably the solution in glycerin of eosin, indulin, and aurantia—the plasmodium does not stain, but the hæmoglobin of the red blood-cell is stained in shades of varying intensity.

Occurrence.—Of a very large number of cases examined by the writer for evidences of malaria in the blood which exhibited certain clinical signs, large spleen, an intermittent, remittent, or irregular temperature, anæmia, only a comparatively small number remain stamped by the blood appearances as malarial disease. This is the more interesting, as the methods of investigation were uniform and carefully carried out. In all the cases which were fixed by the blood examination to be malarial, a history of sojourn outside the city limits in the adjacent country districts could be easily obtained. Some of the cases contracted the disease in foreign lands. The manifestations of malaria in the American cases appeared shortly after the children had returned to the city. In only one case, in which the mother was a very intelligent German and the child aged nine years, the chills set in fully six months after the return to the city. In no case was there a history which could be verified by the study of the blood, etc., in which the malarial fever was contracted in this city. In this respect my observations agree with those of Dr. James, who in a very large series of adult cases failed to find malarial fever an indigenous or even sporadic disease in New York. My own material, ranking among the most extensive in this city, includes cases from all parts of the city, as well as that of the immediate vicinity of the dispensary. No less a clinician than Alonzo Clark, whose equal the city will rarely see, taught in his day that where the soil had been disturbed by excavations in the city streets, intermittent fever was apt to appear in adults. I have had sick children within the past few years from districts where extensive excavations were in progress, but in no case could I trace the malarial disease, if present, to this cause, or if thought to be present, it was excluded eventually by careful study. I conclude that there may have been a change in the subsoil of the city in recent years resulting from density of settlement and more perfected drainage. Malarial fever in children must be regarded as not indigenous in New York city to the extent formerly supposed.

Cases and Types.—The cases of malarial intermittent fever seen by the author range from ten months to nine years of age. Cases of very tender infancy may differ in manifestations from those of later childhood. But while many cases of later childhood resemble in every way those of adult life, yet in some older children this is scarcely so,

and each case must be studied for itself. This study supports the view that in children and infants the manifestations of malarial poison are varied.

If the most recent text-books and articles treating of malarial fevers in children are consulted, it will be seen that the statement is invariably made that the type of fever in these subjects is quotidian, tertian, and quartan, in the frequency stated. The type of fever may, of course, vary with the locality and season of the year. I need but briefly refer to the quotidian parasite of Marchiafava and Celli and the tertian and quartan parasites of Golgi. In all my material, drawn from most removed spots, I have seen the quotidian parasite of Marchiafava and Celli and the quartan parasite of Golgi but once (Case XIV from Asia Minor). The investigations of Golgi are of such interest in this connection as to justify brief notice here. Golgi (*Fortschritte d. Med.*, 1889) concluded, from a study of endoglobular pictures, that the tertian and quartan types of intermittent fever were caused by two distinct species of plasmodia malarie. The one (tertian) ripens or runs its course in the red blood-cell in two days, the other (quartan) requiring three days for its full development and sporulation. In the parasite, therefore, he was able to recognize the type of fever, and even the time at which a chill was imminent. This latter was done by noting the stage of development of the parasite. In pure types of fever, either tertian or quartan, one generation of plasmodia, all in about the same stage of growth, would predominate. In those cases of tertian where the paroxysms were of daily occurrence, several generations of parasites, each with a different cycle of development, were found in the blood. The same was true of irregular types of fever with the tertian parasite. The same argument could be applied to the quartan fevers. If more than one generation of parasite existed in the blood in a tertian case, the fever could become quotidian with daily paroxysms due to the ripening of distinct sets of parasites on different days, each set of parasites taking forty-eight hours to mature; thus 1 0 1 0 1 0 1 0 1 0 1—pure tertian, one parasite; 1 2 1 2 1 2 1 2 1 2 1—double tertian, two parasites, giving quotidian paroxysms.

In quartan we may have the following combinations: 1 0 0 1 0 0 1 0 0 1 0 0 1—pure quartan, one parasite; 1 2 0 1 2 0 1 2 0 1 2 0 1—double quartan, two parasites; 1 2 3 1 2 3 1 2 3 1 2 3 1—triple quartan, three parasites, giving quotidian chills (Mannaberg).

It will be seen that no quartan combination of parasites can cause pure tertian types of paroxysms, though we may have quotidian chills, and in this respect it may resemble the tertian fever.

Marchiafava and Celli described a mild quotidian type of fever as caused at least in the district studied by them by a small parasite with very little pigment. James found most of his cases in the first thirty examined and published by him to be tertian types caused by the tertian parasite. He had never met the quartan parasite and its type of fever. All the writer's cases in children, with the exception of two, were marked by the presence of the tertian parasite. One of the exceptional cases had lasted some time, Russian in origin, and the blood showed the

half-moons and crescents of Laveran; rarely was a full tertian parasite found. The other case was a quartan intermittent containing in the blood the quartan parasite of Golgi. My material places the tertian fever as first in frequency. It must be remembered that in tertian cases quotidian or daily paroxysms occur. This was so in several of my cases. The older authors, in placing the quotidian type of paroxysm as first in frequency (Hench), were correct as to occurrence of paroxysms, but not really correct as to nomenclature of the fever, for it will be seen they may have had the tertian parasite to deal with. It is also possible that in many of these cases the daily paroxysms did not occur at the same time exactly if such had been noted.

The Plasmodium Malarie.—It is not intended to give a description of the *Plasmodium malarie* here, as this has been well done by others, but merely to point out, as has been done above, that the various types of fever (tertian, quartan, quotidian) may be caused by distinct species of parasites differing decidedly in properties (mild, malignant) from each other. The doctrines promulgated by Golgi and his followers differ from those of Laveran, who thought that all intermittent or malarial fevers were caused by the same parasite, which was polymorph and varied in its manifestations in different spots and individuals. In children the writer has observed that it is quite common to obtain a history showing that the paroxysms at first were purely tertian; after a time the little patients would develop double tertian, or what the older authors called quotidian chills. In these cases the chills occur at the same hours, only every other day, or the chill of one day is not of the same series as that of the day immediately following, but removed by one day (two sets of parasites). Frequently we will obtain a history of pure tertian chills every second day at the same hour. If many of such children are examined on the day on which they are supposed to be exempt from fever, it will be observed that they will exhibit a very mild febrile movement, half or three quarters to one degree above the normal in the rectum (Case XII). On closely questioning the parents or patient, it will be found that on these days at a certain hour the children complained of lassitude or headaches. If the blood of these children is examined in the interval, the parasites will be found in varied stages of development. We have here to deal with a form of double tertian fever in which either one set of parasites runs an abortive course of development and sporulation or, when sporulation occurs, it is not sufficiently abundant to cause a chill. The temperature in such cases can be remittent in curve. Though at first parasites may exist in the blood in one generation giving pure tertian, we are impressed, after a study of these cases, that these pure types give way to double tertian fevers after having lasted a short time. In quotidian paroxysms of chills and fever we must be prepared to meet the tertian parasite in children. Further study in other districts will decide how frequently, if at all, the quotidian parasite of Marchiafava and Celli is found in children in this country. The quartan parasite also needs further study in children.

Condition of the Blood; Tertian Parasite.—In pure ter-

tian fever of recent development (Case XV) an examination of the blood a few hours after the chill showed almost exclusively young spore forms in shape of non-pigmented rings in red blood-cells only; rarely was a fully developed plasmodium, apparently delayed in sporulation, found. In some specimens groups of sporula were found free. We can theorize that the delayed form might in time become the leader of a separate generation of parasites. In double tertians, examined between the paroxysms, forms of plasmodia in varied stages of development were found. For convenience they are grouped—

A. The colorless, irregularly oval-shaped plasmodium, without pigment, having a rapid amoeboid movement.

B. The same bodies as A, but larger, containing rods and fine pigment granules. The rods and granules were fine, resembling minute bacilli, having with the amoeboid movement of the plasmodium a rapid oscillatory motion, at times aggregating toward the center of the plasmodium, at others collecting at the periphery. Some granules finally arranged as broken rings in the plasmodium. In this young plasmodium the red blood-cell envelope could be made out.

C. Full-developed plasmodium having structure same as above but larger.

D. White blood-cells, varied in shape, having within their cell body granules and rods of pigment (melaniferous leucocytes). These white blood-cells were not seen to perceptibly change form (without heated stage).

F. Rarely small round spherical bodies with the so-called flagella were found. Only met in two cases.

Stained Specimens contained: A. Hyaline bluish-stained bodies, ring-shaped, inside the red blood-cell. They contained generally at the periphery a darker speck, the nucleus (young native forms).

B. Older forms, bluish-stained, irregular-shaped, no pigment.

C. More advanced forms shaped like a crescent, the points of the crescent inclosing a hyaline, structureless, spherical mass (nucleus), the body of the crescent just showing the indications of pigment. The red blood-cell distinctly swollen above normal size.

D. More advanced forms with or without nucleus, sometimes with vacuoles or empty openings which did not stain; pigment more abundant. Red blood-cell easily made out as anæmic ring, much swollen above normal size.

C. Fully developed plasmodium ready to sporulate; pigment dividing the plasmodium into districts; at other times this not found.

E. Free groups of sporula (after a chill).

F. Spherical hyaline bodies with flagella, rare in dried specimens; found only twice in fifteen cases.

G. White blood-cells containing pigment.

H. Red blood-cells with irregular bluish streaks.

I. Red blood-cells which stained slightly blue and were dotted with bluish specks.

The half-moons of Laveran were found in three cases of tertian accompanying the regular parasite. In a fourth case they were found in the blood only after the same had been repeatedly examined by stain. This was a chronic case and should teach that in these cases where the cres-

cents and moons are found almost exclusively the blood must be repeatedly examined. They have, as we know, in adults persisted a long time into convalescence (Laveran, Mannaberg).

The Ehrlich method does not stain the plasmodium, but it demonstrates very clearly the anæmia of the red blood-cell and its lack of hæmoglobin in proportion to the amount of pigment contained. The larger the plasmodium and the more pigment, the more anæmic the erythrocyte. *Nucleated red blood-cells* were found in two cases in which the anæmia was profound. Eosinophile cells were in some cases so few as to be found with difficulty; in others they were more numerous. In no case increased. The multinuclear leucocytes seemed to be the predominating form of white blood-cell. The case of quartan fever coming under my observation contracted the fever in Asia Minor, where the patient was born. The fresh blood, examined in the intervals of the chills, showed, with a temperature of 99.8° F. in the rectum—

A. Free granules of pigment in the blood, larger than in the tertian cases and irregular in shape. The pigment sometimes found alongside of transparent small round bodies or spores. Sometimes fibrin threads started from the pigment.

B. White blood-cells containing pigment (melaniphorous leucocytes).

C. The colorless plasmodium inside the red blood-cell, having a slowly changing movement.

D. Peculiar brassy-colored shrunken red blood-cells with a small mass of pigment at one spot.

E. Fully developed parasites, the exact counterpart of the photographs published by Golgi of the quartan parasite (*Zeitsch. f. Hygiene*, Bd. x, Heft 1), not seen by me in any of my tertian cases. The "daisy-shaped" forms. The pigment in form of a dark-brown central mass, irregular and large. The finer pigment rods and granules of the tertian forms not seen.

The figures (microphotographs) show the *Plasmodium malariae* of the tertian variety in various stages of development in the same specimen of blood. Taken in the interval of the chills.

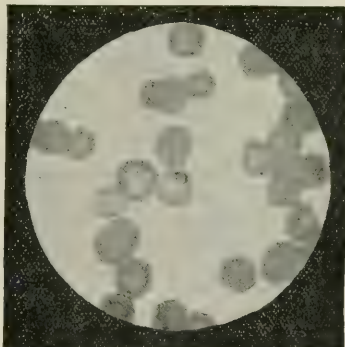


FIG. 1.—Young native parasite inside red blood-cell with nucleus, no pigment. $\times 1,000$. Ehrlich dried specimen stained with methyl-blue. Zeiss immers. $\frac{1}{2}$, projec. ocular 4. Calcium light.

Clinical Course.—It is intended only to touch upon those points which appeared of interest in the author's cases as having been accompanied by the *Plasmodium malariae* in the blood of the patients.

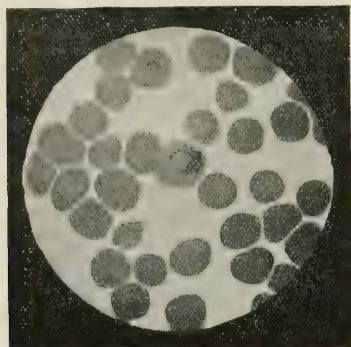


FIG. 2.—Young parasite inside swollen red blood-cell, the tips of the crescent holding the hyaline nucleus. $\times 1,000$. Same as above in stain and preparation.

Incubation Stage.—Some children while living in a malarious district do not manifest any of the classical symptoms of malarial fever. At first there are absolutely no objective signs. The febrile movement must be low, coupled with a slight anæmia not noticeable at first to the parents. After coming away from the infected district the chills appeared in some of my cases in from eleven days to two to four weeks. Close questioning failed to discover illness of a marked character while at the malarial spots. In one case, in which the mother and the patient, nine years old, both were intelligent, the chills appeared fully six months after leaving the infectious district. Here the incubation may have been prolonged, or, what is more probable, the poison may have manifested itself months previous in the form of masked symptoms since forgotten.

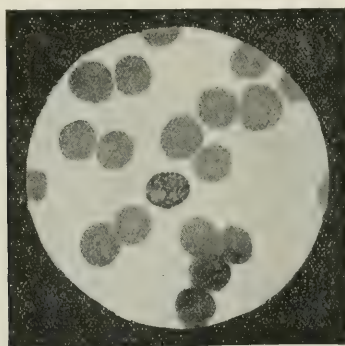


FIG. 3.—Fully developed parasite, rods of pigment arranged in round areas, nucleus indicated by opening, also vacuoles. $\times 1,000$. Stain, preparation, and lens as above.

Chills.—In one case my attention was called to an infant, aged ten months, whose sister was under my care for malaria. The infant was extremely anæmic. There was

no regular febrile curve, and at no time were there chills. The spleen was large. The parents had noticed the pallor, but had not considered the infant ill, and did not ask advice about its condition. The *Plasmodium malariae* was found in the blood abundant and in various phases of development.

In another infant the chills manifested themselves in a blueness and coldness of the surface coming on at a certain hour of the day. This was followed by a febrile movement and sweats. In another case, a grown boy, the paroxysms were sometimes indicated by headache and lassitude coming on at a certain hour.

Typical chills were present in most cases. In no case was there eclampsia.

Fever.—I have elsewhere called attention to a set of cases in which the pure tertian paroxysms are accompanied by a low grade of continued fever on the day upon which the patient is supposed to be exempt. On this day, at a certain hour, lassitude and headache will indicate the duplicate chill. The temperature upon these days, even in the rectum, is only slightly raised—a half to one degree. It seems as though in these cases we have a marked attack of intermittent alternating with the classical paroxysm.

Spleen.—In all but one case the spleen was larger than normal, and could be palpated below the border of the ribs. In the case in which the writer found only oval and crescent-shaped forms of plasmodia the size of the spleen was enormous. This was a chronic case. In the case in which the spleen was not felt below or behind the ribs (Case XV) it could be mapped out by percussion. In this case, in which the patient was seen on the first day of the paroxysms, the spleen was not at all as large as we find it in children. Here the difficulties of diagnosis would be increased by an omission of a blood examination. At this early day, without perceptible enlargement of the spleen, the *Plasmodium malariae* was found in the blood.

Anæmia, which was present in most cases, persisted for a long time after the spleen could not be felt below the border of the ribs.

Repeated Attacks and Relapses.—A few of my cases suffered from a number of attacks of intermittent before coming under observation. In these cases, notably the quartan case, the anæmia was not very profound, nor was the spleen markedly larger than in those cases in which there was a history of a single attack alone. Children thus seem to bear the malarial poison well in certain districts, and must be long sufferers before exhibiting profound effects. What the parents call a number of attacks are legitimately assumed to be relapses. Excluding two cases, including the quartan case, many cases acted thus: The parents, after having dosed the children with quinine, noted the disappearance of the paroxysms and suspended treatment. In such cases the chills would return after an interval. How long this interval can be may be seen from the following well-observed case: An infant, aged fifteen months, was treated by me for malarial fever, and the treatment continued until not only the chills disappeared and the spleen returned to the normal, but arsenic was administered for a long period until all anæmia had disappeared.

The infant was seen at intervals, and continued healthy. Fully nine months after the original attack, without having returned to the malarious district, the infant became anæmic and manifested tertian paroxysms, with the reappearance in the blood of the plasmodium. Such cases can only be explained by assuming the long resistance of spores to the action of quinine and arsenic. Laveran and Mannaberg found crescents in the blood long after convalescence was established.

Differential Diagnosis.—The study of the blood and allied diseases, especially in infancy and childhood, has advanced so much within the past decade that the diagnosis of malarial disease to-day presupposes an intimate knowledge of the diseases of the blood and spleen as well. The enlargement of the spleen, upon which so much stress was formerly laid, is present in malarial poisoning it is true, but it has been shown in Case XV to be absent at least at the outset of the malady. Enlargement of the spleen is also present in other diseases in which there are remittent curves of temperature, such as typhoid fever and chronic enterocolitis. In rhachitis we find a number of cases with enlarged spleens which are apt to exhibit transient temperatures due to dyspepsias. Severe chronic anæmias, with or without rhachitis, show large spleens. I need only refer to that interesting condition of infancy known as anæmia infantum, pseudo-leucæmia, or von Jaksch's disease, examples of which have been recently published by the writer in the *Archives of Pediatrics*. In one of these cases, which is still alive and doing well after a year of observation, the enlarged spleen was combined with a remittent curve of temperature. The author has met cases of the infectious fevers, such as varicella, which at the outset give a history of repeated chills and show enlarged spleen. Cases of congenital syphilis will at times show not only an enlarged spleen, but enlarged liver also, and this in cases which have been observed from birth. It seems to the author that in addition to our history we must examine the blood in each case for a crucial

exclusion diagnosis. In cases of marked intermittent fevers, obscure symptoms (intermittens larvata), such as have been published by Filatow, examination of the blood gives us the only crucial test. The cases in which a negative result is obtained and in which the plasmodium is difficult of discovery are chronic cases with a continued remittent or irregular temperature curve; here the plasmodium appears mostly as half-moons and crescents of Laveran, and many specimens of blood may be examined without their discovery, such as Case IV. Quinine administered in even moderate doses will drive the plasmodium out of the circulation in children even after twenty-four hours of exhibition of the drug. With correct technique and the observance of the above precautions it is difficult to conceive of negative cases.

Treatment.—The mode of treatment of intermittent fevers adopted by me is simple and will scarcely present anything novel.

Quinine in the form of the bisulphate or hydrochloride is the most favorite prescription. Children will bear larger doses than adults and should have it thus. The paroxysms are anticipated by two hours by the first dose, and the second dose is given at the time of the paroxysm; thus the drug is exhibited only twice daily. Quinine will eliminate the paroxysms, but in some children improvement ceases there, and arsenic, in the form of Fowler's solution, must be administered with the quinine. After the spleen ceases to be felt below the border of the ribs quinine is stopped and arsenic is continued until all signs of anæmia have disappeared; this, in some cases, is quite an extended period of time. Inasmuch as in children preparations of iron are not so well borne and the intestinal processes are much disturbed by its exhibition, it should be withheld. If exhibited at all for the anæmia, it should be done through the agency of the vegetable preparations, the mannitate, or those preparations which contain minimal quantities of manganese.

Epitome of Cases.

Case.	Age.	Sex.	Number of the attack.	Duration of attack.	Presence or absence of chill.	Type of paroxysm.	Species of parasite.	Spleen.
I.	9 years.	Female.	First.	2 weeks.	No chill.	No type; irregular.	Tertian.	Large.
II.	15 months.	Female.	First.	3 weeks.	Yes.	At first tertian, now quotidian.	Tertian.	Large.
III.	10 months.	Female.	First.	?	None.	Irregular.	Tertian.	Large.
IV.	3 years.	Female.	First.	4 months.	None.	Irregular.	Crescents and tertian.	Very large.
V.	8 years.	Female.	First.	3 months.	Yes.	Tertian.	.....	Large.
VI.	9 years.	Male.	First.	10 days.	Yes.	Tertian.	Tertian.	Large.
VII.	6 years.	Female.	First.	.....	Yes.	Tertian.	Tertian.	Large.
VIII.	22 months.	Male.	First.	7 days.	None.	Quotidian or double tertian.	Tertian.	Large.
IX.	5 years.	Male.	Second.	3 days.	Yes.	Tertian.	Tertian.	Large.
X.	4 years.	Female.	First.	3 weeks.	Yes.	Tertian.	Tertian.	Large.
XI.	3½ years.	Male.	Second.	2 months.	None.	Pure tertian.	Pure tertian.	Very large.
XII.	9 years.	Female.	First.	5 days.	Chill only every other day; fever on the day intervening.	Double tertian; an attack not accompanied by a regular chill.	Tertian.	Large.
XIII.	8 years.	Female.	First.	4 weeks.	Yes.	Tertian.	Tertian.	Large.
XIV.	5 years.	Male.	Several.	weeks.	Yes.	Double quartan.	Quartan.	Large.
XV.	3½ years.	Female.	First.	12 days.	Yes.	Tertian.	Tertian.	Normal in size.

NOTE.—Case XII, on the day when patient was supposed to be well, temperature 101.2° in rectum (marked attack without chill).

TETRA-ETHYL-AMMONIUM.

A NEW SOLVENT FOR URIC ACID DISCOVERED AT THE EDISON LABORATORY.

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DURING my researches into the subject of the introduction of drugs into the body through the skin by electricity (cataphoresis) the question of the advantages of such a method arose in connection with the use of local solvents, as well as of local anesthetics. Local solvents might be useful in the removal of gouty and rheumatic topi and swellings. At the same time that I was making investigations into the subject of cataphoresis Mr. Thomas A. Edison undertook some work in the same line, and particularly in relation to rheumatic joints. These experiments are now familiar to the profession. It was evident, however, that none of the salts, such as those of lithium, was sufficiently effective in dissolving uric acid and urates, and it became necessary to seek a new solvent that would better answer the purpose. Mr. Edison then set for himself the problem of finding the best chemical solvent or solvents for uric acid. He possesses the largest collection of liquid solvents in this country, having every solution that can be permanently kept. He prepared several hundred of the smallest glass phials, each holding about two cubic centimetres, corked and labeled. In each he dropped a small quantity of powdered uric acid as obtained chemically pure from Germany and then filled up the phials each with one solution. After shaking them up he set them aside for periodic examination. Only two of these phials showed that the uric acid had dissolved—that is, with anything like readiness. The two successful solutions were those of neurine and tetra-ethyl-ammonium. On repetition, these were found to dissolve uric acid quite freely. I have compared myself the relative values of tetra-ethyl-ammonium and piperazine, finding that the former is much more effective than the latter as a solvent for urea, uric acid, and the like. I employed ten-per-cent. solutions of each for my experiments. Urate of sodium removed from the knee of a patient dissolved readily in both neurine and tetra-ethyl-ammonium. Mr. Edison determined to follow up the use of the latter as being a definite inorganic compound, and the following experiments were made under his directions at the Edison Laboratory: Two rabbits were selected and the hypodermic injections were made as below:

December 1st, 0.25 c. c. of a one-per-cent. watery solution of tetra-ethyl-ammonium in the right ear of rabbit No. 1.

December 2d, 0.5 c. c. of same in left ear of same rabbit.

December 3d, 0.5 c. c. of same in left ear of rabbit No. 2.

December 4th, 0.75 c. c. of 1.7-per-cent. solution in right ear of rabbit No. 2.

December 6th, 0.75 c. c. of three-per-cent. solution in right side of rabbit No. 1.

December 8th, 0.75 c. c. of three-per-cent. solution in right side of rabbit No. 2.

December 10th, 1.0 c. c. of three-per-cent. solution in four pills by mouth in rabbit No. 2.

No bad effects followed any of these administrations. Mr. Edison turned the whole matter over to me for further investigation. It seems that both neurine and tetra-ethyl-ammonium are normal constituents of the bodies of animals, and it may be that the diseases in which urates are produced and accumulated in the system are due to a deficiency of what seem to be normal elements of our structures. Now it became necessary to make some observations in human beings, and being generously supplied with the drug by Mr. Edison, it not being obtainable in this country, I have established its dosage and apparent usefulness, and now give it to the profession for such further experiment as may seem justifiable after the above facts. I trust that those physicians especially who have much to do with uric-acid calculi, gouty and rheumatic conditions, and the like, will make use of what seems to be a valuable addition to the pharmacopoeia, and publish the results of their treatment. It is important to bear in mind that tetra-methyl-ammonium is poisonous, giving rise to symptoms similar to those of curare, whereas tetra-ethyl-ammonium may be employed with safety. Through the courtesy of Dr. S. T. Armstrong, attending physician at the Harlem Hospital, the tetra-ethyl-ammonium in a ten-per-cent. solution was tried upon three patients whose histories are given below:

CASE I.—T. O'C., aged twenty-nine years; single; United States; occupation, laborer. Admitted on February 27, 1893, at 9.15 P. M. Diagnosis: Acute articular rheumatism and mitral stenosis.

History.—Family history negative. Previous history, usual diseases of childhood. Patient states that he has always enjoyed good health up till four years ago, at which time he had his first attack of rheumatism. Since that time he has had three attacks. Between attacks felt in his usual health, as far as the rheumatism was concerned. He has been in a hospital on two different occasions for the above complaint. Present history: This attack could not be assigned to any particular, to cold or wet. Sickness dates back one week previous to admission. He first experienced a slight chill, followed by a slight fever, and the next day noticed that there was some stiffness in the knee joints. In a short time they became red, hot, swollen, and very painful, especially in attempting any movement. This condition of things remained about the same up till the time of admission. Examination in hospital showed that, besides the knee joints, there was some stiffness in both ankles, and within two days they became involved like the knees. Examination of heart showed a mitral presystolic murmur, heard only at the apex and not transmitted (mitral stenosis).

February 27th.—Temperature, 100.8°; pulse, 88; respiration, 26 (on admission).

Treatment.—Tetra-ethyl-ammonium, ten-per-cent. solution, ten minims t. i. d.; the temperature, pulse, and respiration taken before and after giving solution.

February 28th, 3 P. M.—Temperature, 101°; pulse, 88; respiration, 18. 4 P. M., temperature, 101.4°; pulse, 88; respiration, 22.

March 1st, 8.30 A. M.—Temperature, 99.2°; pulse, 76; respiration, 20. 9.30 A. M., temperature, 99.2°; pulse, 76; respiration, 20. 12 M., temperature 99.8°; pulse, 76; respiration, 20. 1 P. M., temperature, 99.8°; pulse, 84; respiration, 20. 5.30 P. M., temperature, 100.2°; pulse, 84; respiration, 20. 6.30 P. M., temperature, 100°; pulse, 84; respiration, 20.

2d, 8.50 A. M.—Temperature, 98.8°; pulse, 84; respiration, 20. 9 A. M., temperature, 98.8°; pulse, 84; respiration, 18.

1.30 P. M., temperature, 99° 6'; pulse, 86; respiration, 28. 2.30 P. M., temperature, 99° 6'; pulse, 96; respiration, 30. 9.55 P. M., temperature, 101° 4'; pulse, 96; respiration, 36. 10.55 P. M., temperature, 100°; pulse, 84; respiration, 20.

3d, 8.30 A. M.—Temperature, 100° 6'; pulse, 88; respiration, 28. 9.30 A. M., temperature, 100° 6'; pulse, 84; respiration, 24. 12.10 P. M., temperature, 100° 8'; pulse, 84; respiration, 20. 1.10 P. M., temperature, 101° 2'; pulse, 97; respiration, 27. 6.15 P. M., temperature, 100° 8'; pulse, 84; respiration, 24. 7.15 P. M., temperature, 100° 4'; pulse, 84; respiration, 26.

4th, 8.30 A. M.—Temperature, 99°; pulse, 78; respiration, 20. 9.30 A. M., temperature, 98° 6'; pulse, 76; respiration, 20. 1.30 P. M., temperature, 98° 4'; pulse, 84; respiration, 18. 2.30 P. M., temperature, 99° 2'; pulse, 78; respiration, 18. 5.30 P. M., temperature, 98° 6'; pulse, 76; respiration, 20. 6.30 P. M., temperature, 98°; pulse, 84; respiration, 24.

5th.—Temperature, 98° 6'; pulse, 78; respiration, 18.

6th.—Temperature, 98° 2'; pulse, 74; respiration, 18.

7th.—Temperature, 99° 2'; pulse, 80; respiration, 20.

8th.—Temperature, 98° 8' to 99° 2'; pulse, 82 to 84; respiration, 22 to 24.

9th.—Temperature, 98° 2'; pulse, 68 to 78; respiration, 16 to 20.

10th.—Temperature, 98°; pulse, 82; respiration, 24.

Solvent solution suspended on March 5th. The rheumatic symptoms soon passed out of the ankle joints. The knees were slower to yield to treatment, as they had been unusually swollen and painful, there being a large amount of exudates in the joint. For four days previous to discharge the patient was able to be about the ward. At the time he went home the joints were restored to their normal condition, and the condition of patient was very good. The mitral stenosed murmur was indistinct, but still present.

Result.—Discharged, cured, March 10, 1893.

Urine Examination.—February 28th, amber; acid; specific gravity, 1.017; albumin, none; sugar, none. March 6th, amber; acid; specific gravity, 1.017; albumin, none; sugar, none. March 7th, 1 c. c. = 0.014 gramme urea. March 8th, 1 c. c. = 0.012 gramme urea. March 9th, 1 c. c. = 0.011 gramme urea. March 10th, 1 c. c. = 0.012 gramme urea.

Remarks.—In this case the rheumatic attack was of remarkably short duration—only one week after the beginning of the remedy. His doses were ten minims of a ten-per-cent. solution three times a day.

CASE II.—O. G., aged eighteen years; single; born in Germany; three years in United States; occupation, clerk. Admitted to hospital on March 14, 1893. Diagnosis: Acute articular rheumatism.

History.—Family history negative. Previous history: Always enjoyed good health, except the usual sickness incident to childhood. Present history: Four weeks previous to admission the patient states that he was exposed to wet and cold for some time, and he developed a severe "cold." A week after this he noticed some stiffness in the ankle joints, and they very shortly became painful, red, hot, and swollen. Patient being unable to continue about his work, then went to bed. At the time of his admission the ankle joints were about well, there being only some stiffness remaining. The day before he came into the hospital the knee joints became involved in the same way. There was no history of initial chill, and there was but slight fever.

March 14th, temperature, 99° 6'; pulse, 100; respiration, 29.

15th.—Tetra-ethyl-ammonium, ten-per-cent. solution, ordered five minims t. i. d. 11 A. M., temperature, 102° 2'; pulse,

100; respiration, 28. 12 M., temperature, 102°; pulse, 100; respiration, 22. 2 P. M., temperature, 102° 6'; pulse, 100; respiration, 28. 3 P. M., temperature, 102° 4'; pulse, 102; respiration, 20. 5 P. M., temperature, 102°; pulse, 100; respiration, 24. 6 P. M., temperature, 103° 2'; pulse, 112; respiration, 34. 9 P. M., five grains of antifebrin were ordered.

16th.—Temperature, 101°; pulse, 108; respiration, 28. 9.20 A. M., temperature, 100° 2'; pulse, 100; respiration, 28. 2 P. M., temperature, 102° 4'; pulse, 108; respiration, 32. 3 P. M., temperature, 102° 8'; pulse, 108; respiration, 28. 5 P. M., temperature, 101°; pulse, 100; respiration, 32. 6 P. M., temperature, 103°; pulse, 108; respiration, 26.

17th, 9 A. M.—Temperature, 101°; pulse, 88; respiration, 28. 10 A. M., temperature, 101°; pulse, 88; respiration, 28. 2 P. M., temperature, 102°; pulse, 92; respiration, 28. 3 P. M., temperature, 101° 4'; pulse, 88; respiration, 28. 5 P. M., temperature, 101°; pulse, 80; respiration, 26. 6 P. M., temperature, 101° 4'; pulse, 94; respiration, 26.

18th, 9 A. M.—Temperature, 100° 2'; pulse, 90; respiration, 24. 10 A. M., temperature, 100° 6'; pulse, 94; respiration, 26. 2 P. M., temperature, 101° 4'; pulse, 100; respiration, 28. 3 P. M., temperature, 101°; pulse, 100; respiration, 28. 4.30 P. M., temperature, 104° 4'; pulse, 96; respiration, 26. 5.30 P. M., temperature, 101° 4'; pulse, 94; respiration, 28.

From this time on the temperature, pulse, and respiration ran about normal, the solvent solution having no effect on them.

Results of examination of urine: March 17th, specific gravity, 1.021; acid; no albumin. March 19th, 1 c. c. = 0.025 gramme urea. March 20th, 1 c. c. = 0.02 gramme urea. March 21st, 1 c. c. = 0.018 gramme urea.

The patient improved rapidly under treatment, and was well at time of discharge.

Result.—Discharged, cured, March 22, 1893.

Remarks.—The patient was on five minims, three times daily, of the ten-per-cent. solution of tetra-ethyl-ammonium by the mouth for eight days, at the end of which time he was discharged recovered. The acute attack had begun some three weeks previous to the beginning of this treatment.

CASE III.—B. D., female, admitted December 19, 1892.

Diagnosis.—Acute articular rheumatism.

History.—Family history negative. Patient states that she has always had good health up till one year ago, at which time she had her first attack of rheumatism and was sick two months. She entirely recovered from it, and had no further trouble till her present sickness. Present history states that she had been sick three weeks previous to admission. There is no history of chill, fever, etc. States that she simply began to experience slight pain in the left hand, foot, and hip; subsequently these joints became swollen and painful and she was unable to move them, and any attempt to do so caused great pain. Within a few days all the joints of the extremities became involved in the same way; at the time she was brought in by ambulance she was almost helpless. From December 20th to January 2d temperature ranged from 98° to 100°; pulse, 80 to 100; respiration, 15 to 28. January 2d to January 6th, temperature 99° 2' to 100° 8'; pulse and respiration same. January 7th to January 20th, temperature, 98° to 100° 4'; pulse and respiration same. January 21st to February 7th, temperature, 98° 8' to 101°; pulse and respiration same.

Treatment.—Usual remedies, without effect from the day of admission to February 8th, when all were discontinued and she was put upon tetra-ethyl-ammonium—one to two minims of

the ten-per-cent. solution four or five times daily hypodermically. Thus given, it had no bad effect except in some places to produce tissue necrosis without abscess formation at the point of injection. There were no general effects upon the respiration, pulse, or temperature. After a few doses hypodermically it was given by the mouth in gradually increasing doses until sixteen minims of the ten-per-cent. solution was reached. This was continued until her discharge, March 1, 1893. Her improvement was slow and gradual, and for two weeks previous to her discharge she was able to be about the ward. The following examinations of the urine were made:

Union Examination.—February 7th.—Specific gravity, 1.001; acid; albumin, none; sugar, none.

8th.—Specific gravity, 1.012; acid; albumin, none; sugar, none.

10th.—1 c. c. = 0.005 grm. urea.

11th.—1 c. c. = 0.005 grm. urea.

12th.—1 c. c. = 0.005 grm. urea.

13th.—1 c. c. = 0.005 grm. urea.

14th.—1 c. c. = 0.125 grm. urea.

15th.—1 c. c. = 0.0125 grm. urea.

16th.—1 c. c. = 0.013 grm. urea.

18th.—1 c. c. = 0.001 grm. urea.

19th.—1 c. c. = 0.011 grm. urea.

These cases, while there was manifest improvement in them under the new treatment, are not brought forward as evidence of the value of the drug, but were used to determine dosage in human beings.

The doses by mouth that may be safely used are ten to twenty minims of a ten-per-cent. solution of tetra-ethyl-ammonium. Hypodermically it would be better to have a one-per-cent. solution and to inject not more than ten minims of this until assured that no deleterious effect upon the tissues is produced.

Tetra-ethyl ammonium: Hofmann (*Annalen der Chemie*, vol. lxxviii) obtained it by decomposing its iodide by moist AgNO_3 or its sulphate by baryta. It occurs in deliquescent hair-like needles. It absorbs CO_2 from the air. It is strongly alkaline, saponifying fats. Concentrated, it burns the tongue. It is as bitter as quinine. It has a caustic action upon the epidermis and an unctuous, alkaline feel when rubbed between the fingers. Its formula is NEt_4OH . It is not decomposed by the galvanic current. It forms numerous salts (sulphate, nitrate, phosphate, carbonate, hydrochlorate, hydrobromate, iodide, bromide) and beautiful double salts with platinum, gold, mercury, etc.

The ten-per-cent. solution may be safely employed internally in the doses already stated (ten to twenty minims three times daily), and it may be used hypodermically in one-per-cent. solutions. It may prove especially useful in the place of solutions of lithia salts when applied on positive galvanic electrodes about gouty joints or rheumatic tophi. The one-per-cent. solution may be used for cathartic purposes.

Changes of Address.—Dr. E. N. Bradley-Byström, to No. 132 West Fifty-eighth Street; Dr. C. B. Carter, to No. 36 West Fifty-ninth Street; Dr. J. F. Chmieleck, from Detroit to No. 212 East Seventieth Street; Dr. J. Clifton Edgar, to No. 54 East Thirty-fourth Street; Dr. Samuel E. Milliken, to No. 36 West Fifty-fifth Street; Dr. A. N. Strouse, to No. 72 West Fifty-fifth Street.

Dr. Oliver Wendell Holmes passed his eighty-fourth birthday in good health on the 29th of August.

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MEDICINE AS A CAREER.

DURING a recent after-dinner conversation between some physicians one of the party chided another because he said he had advised that a young man who had finished his collegiate career should take up the study of medicine. The critic intended that amiability rather than captiousness should be the reason for his protest against the possible acquisition by the medical profession of another member that took this calling as a career in lieu of something more attractive or as an easy means of making a living. At the present season, when all our medical colleges are beginning their courses of winter lectures, many young men are preparing to matriculate as students of medicine for no better reasons than those just referred to.

We wish that those who were about to take up this profession as a life work would seriously peruse an excellent paper that was published in the *Forum* last February, by Dr. John S. Billings. He presents the practice of medicine as offering at this time opportunities for the employment of the highest mental faculties, for the increase of knowledge, for usefulness to the world, and for the attainment of true happiness such as no other profession carries with it. But he at once qualifies this attractive statement by saying that he does not mean to assert that it will certainly secure to its followers all these things, or indeed any of them, but that, given the same degree of intellect, with a good preliminary education, the probabilities are that, out of a thousand men taking up the study of medicine, more will attain success than will do so among the same number of young men of like attainments who devote themselves to the other liberal professions. He defines a successful career as one in which the individual has done the best work of which he was capable—work that is done interestedly, ungrudgingly, pleasurably, unselfishly, without the ulterior motive of acquiring wealth, or fame, or power thereby. He believes it “a career which has secured a happy home and sufficient means to support it, although it may not have led to wealth; it has brought to its pursuer the approval and friendship of those best acquainted with his life and work, although it may not have made him famous or given him decorations or formal honors; it has made his advice valued and sought for by those who know him, although it may not have given him an executive office or made him a ruler over his fellow-men. Such a career does not protect from the afflictions and sorrows common to humanity, but it does away in a great measure with boredom and ennui, with weary waiting for something to turn up, and the work itself is the best resource against inevitable grief.”

Dr. Billings then reviews some of the unknown regions of medicine, and considers the qualifications necessary to pursue it. He advises that the student should have taken his bachelor's degree at a large university, not merely to guarantee a proper training, but because of the atmosphere and associations there. He is then to take a four years' course of instruction in a medical school having ample hospital and laboratory facilities, and he is to serve for a year or more in a hospital. Following this should be several years of study in laboratories or in clinics where he may apply the knowledge he has acquired in his college training. Dr. Billings estimates that this plan will require an investment of some eight thousand dollars from the time the student entered the university. If the intending student has the means that will enable him to spend the time indicated, he had better so invest them; if he has not these means, he should carefully consider whether he had better not abandon all thought of studying medicine and try some of the numerous other occupations that offer a better investment for time and money, and wherein "he may be a less dangerous and more useful member of society."

Dr. Billings considers that there is no need in this country of men possessing the diploma of doctor of medicine, for it has at least twenty thousand more than it requires or can properly support; but that there is need of several hundred such properly trained physicians as he has indicated.

It is true that the successful practice of medicine demands either the highest qualifications, both moral and intellectual, or the most cunning and astute knavery. The latter does not, of course, lead to a true success, but it fills an extensive field, and that seems to afford great satisfaction to its patrons, with desirable rewards to its professors. The confidence-man in medicine finds a sphere for the exercise of his talents that is unsurpassed.

While we do not deny the accuracy, in part, of Dr. Billings's definition of a successful career, it is manifest that it ill accords with the common acceptance of what constitutes such a career. A man may do all these things and be a hod-carrier, and yet he could hardly be considered as attaining a successful career. And there are mental hod-carriers, men that never get beyond "hack" work all their lives, who would still be examples of all the virtues catalogued as essential to a successful career.

It has been said that the public is not a good paymaster of the medical profession; it is less than that, it is not a good partisan of the medical profession. William Cobbett, perhaps smarting from Benjamin Rush's vengeance, once wrote: "The respect due to the profession of the surgeon or physician is, however, of an order inferior to that which is due to the profession of the law; for the character of counsellor or of judge . . . has, in the affairs of men and on their condition in life, a much more extensive and more powerful influence than can possibly arise from the application of surgical or medical knowledge." This opinion is still prevalent, and we know of no profession in which there are more instances of "the spurns that patient merit of the unworthy takes," and this unjust con-

temning is not confined to the illiterate or half-educated. Every physician that reads these lines must have knowledge of this fact.

The good physician, like the poet, is born, not made. There is one great prototype that is acknowledged throughout Christendom as his Exemplar. To an expensive investment of time and money necessary to acquire his education, as Dr. Billings has shown, the neophyte must add an instinctive love for such a vocation, as well as a willingness to strive for ideals more comprehensive than those set forth by Dr. Billings, because there must be a determination to ignore insult, injustice, and ingratitude and to exhibit courage in face of the adversity attendant upon building up a practice. Of such a physician it must always be said:

And thus he bore, sans bate or ban,
The grand old name of gentleman.

MINOR PARAGRAPHS.

HASHEESH-SMOKING IN EGYPT.

DR. MACKENZIE, of Cairo, states in the *Chemist and Druggist* for July 29th that the use of Indian hemp prevails to a considerable extent in lower Egypt, although both the importation of the drug and the cultivation of the plant are forbidden by law. The plant is grown clandestinely to a small extent. The smuggling of the prepared hasheesh is carried on quite extensively, chiefly by Greek traders and seamen. Hasheesh as bought from a shop (and that is easily done) is an earthy-brown substance in lumps, which may be easily broken. It is prepared by taking the small leaves and female flowers from the tops of *Cannabis indica*, rubbing them down to a powder, putting through a fine sieve, and heating the dark-green powder thus obtained till it becomes cohesive, and then working up into lumps by the hand. It is smoked in a special pipe called a *goza*, having a bulb for water and two tubes, one for the mouth and the other for the bowl. The bowl is first charged with tobacco, then with a small piece of the hasheesh; upon this is placed a live charcoal. The odor of the burning hasheesh is peculiar—unlike any other known to the writer. Of the effects of the inhalation of the burning drug Dr. Mackenzie thus writes: "It first produces that exhilaration which leads on to those deeds of violence that have gained for it its evil reputation; this is followed by a dreamy condition similar to that enjoyed by opium smokers, and, no doubt, constituting the charm which tempts the *hashash* (as the hasheesh smoker is called) to a miserable future. Insanity is a frequent result of the too free indulgence in this species of intoxication, and there are many to be seen who, having been well educated and having filled important posts, have fallen victims to the drug." The seeds of *Cannabis indica* differ from those of common hemp (*Cannabis sativa*) in having a tougher coat, which difference may be distinctly observed by taking the seeds between the teeth and crushing them. The hasheesh seeds are also more flattened and sharper at the edge when cut through the middle; the section thus seen shows a dark line between the husk and the albumen, while in common hemp seeds this dark substance is not so conspicuous or is absent altogether. The active principle of hasheesh is generally supposed to be a resin, which was first obtained by T. and H. Smith; other investigators have isolated a volatile oil named cannabene (Personne) and an alkaloid, tetano-cannabine (Hay). Nicotine is said to

have been obtained, but that has since been denied, and some authorities say the active principle has not yet been isolated.

REINDEER MEAT AS FOOD.

A CLERGYMAN, the Rev. Mr. Wallis, who has lived for several years on the Porcupine River, in the British northerly possessions, writes entertainingly of his manner of life in that frigid region. "Many times," he says, "I have subsisted almost exclusively on reindeer meat. It is very good, and I may say it is about the only kind of meat you don't get tired of. I think it is better, all things considered, than beef, and that you can eat it longer without its palling on you. It is a venison more than anything else. The Indians eat it almost exclusively, and they are very big and strong. Some of them are six feet in height and the average is about five feet ten inches. They are genuine North American Indians, and not the Aleuts, Eskimos, or a mixture of the two. I keep an Indian hunter and he supplies me with all the reindeer meat I want. He also brings me in grouse, ducks, bear, and other game as I need it. I have learned to shoot pretty well myself, as the white men do in that region or anywhere contiguous to it. The ducks and grouse, like the reindeer, are remarkably good eating."

THE DOCTOR AND THE JANITOR.

THE newspapers lately gave an account of an incident that shows one of the attractive features of apartment houses. It seems that two sisters were living together in a "flat," and that during the night one of them went out to get a physician to visit the other, who was sick. When the lady got back to the house, accompanied by the doctor, she was accosted by "the lordly janitor," as the *Sun* calls him, and told that that was a respectable house, and she could not bring a strange man into it at night! And then, the account goes on to say, the janitor actually ejected the physician.

A COLONY OF MERCY.

A SMALL book with this title has been issued in London. The author's object is to describe the beneficent work of Pastor von Bodelschwing at Bethel, Westphalia. The reverend gentleman is well known in this country for the labor colony he has originated for the benefit of epileptics. The pastor comes from a noble family. He was a schoolmate of the late Emperor Frederick and his father had been a cabinet minister of Prussia. He was partially educated for official position, but his mother's influence directed the current of his thoughts toward practical philanthropy and missionary work. For a time he labored among the rag-pickers and crossing-sweepers of Paris. The ill-health of his wife led him to return to Germany, and not long afterward he was placed in charge of a small hospital for epileptics at Bielefeld, a manufacturing town of his native province. This was about twenty-five years ago. He began by caring for twenty-six male epileptics; he now superintends a thousand or more inmates in sixty cottages, on a farm of four hundred acres. It is not generally known how great is the diversity of employments brought within the scope of the farm colony. For example, it is stated that a large trade is done, with many and distant places, in providing a pure bromide of potassium, which is about the only drug that they use for the epileptic patients. There has also been established at Bethel a labor colony for reform-seeking inebriates. They are admitted under a pledge to undergo treatment for a year, or longer if so directed. All wages are forfeited by those inmates who break through their pledge of abstinence. This subcolony is called "Friedrichs-Hütte." Those who seek the advantages of this

retreat are required to do their share of the honest daily toil which is, in part at least, the curative agent that is the pastor's chief reliance.

THE WESTCHESTER FREE HOSPITAL.

THIS institution was opened about September 1st. Many persons visit it daily and not a few leave substantial donations. The following is the medical board for 1893:

Consulting Physicians—Dr. Clement Cleveland, gynecologist, New York; Dr. J. E. Ellis, Westchester; Dr. Frank W. Jackson and Dr. W. B. James, New York. Consulting Surgeons—Dr. Joseph B. Bissell and Dr. Arnold Naudain, New York, and Dr. Z. E. Lewis, New Rochelle. Out-patient Department—Dr. W. C. Deming, attending physician and surgeon, and Dr. W. B. MacNichol, Westchester, and Dr. Frank Anson Becker, West Farms. Pathologist, Dr. J. S. Thacher, New York.

A POST-OFFICE RULING REGARDING DISEASE GERMS.

THE *Boston Medical and Surgical Journal* for August 24th states that the Postmaster General has made a ruling that disease germs are to be classed with unmailable articles, no matter how securely they may be sealed.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 12, 1893:

DISEASES.	Week ending Sept. 5.		Week ending Sept. 12.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	19	7	37	11
Scarlet fever.....	23	2	31	1
Cerebro-spinal meningitis.....	74	0	6	5
Measles.....	50	2	57	7
Diphtheria.....	3	2	95	28
Small-pox.....	7	0	8	2

The American Orthopedic Association.—The seventh annual meeting will be held in St. Louis on Tuesday, Wednesday, and Thursday, the 19th, 20th, and 21st inst., in the lower hall of the College of Pharmacy, 2110 Lucas Place, under the presidency of Dr. A. J. Steele, of St. Louis, besides whose presidential address, entitled *The Embodiment of an Idea*, the programme includes the following:

Tuberculosis and the Mind Cure, by Dr. Ansel G. Cook, of Hartford; A Case of Fragilitas Ossium, exhibiting over One Hundred Broken Bones, by Dr. Wallace Blanchard, of Chicago; Congenital Deformities, by Dr. De Forest Willard, of Philadelphia; A Case of Deformity of the Lower Limbs with Spina Bifida, by Dr. W. J. Taylor, of Philadelphia; Congenital Absence of Both Clavicles, with Rotaro-lateral Curvature—Specimen; and A Case of Congenital Dislocation of the Hips—Patient, by Dr. A. J. Steele, of St. Louis; Some of the Uses of Continued Extension, by Dr. Henry G. Davis, of Everett; Historical Notes of the Use of Traction in Diseases of the Joints, by Dr. A. B. Judson, of New York; The Value of Traction in the Treatment of Joint Disease, by Dr. H. L. Taylor, of New York; The Value of Traction in Hip Disease as Investigated by Experiment, by Dr. E. H. Bradford, of Boston; Exhibition of New Traction Mechanism for Hip Splints, with Remarks, by Dr. L. A. Weigel, of Rochester; A Modification of the Long Traction Splint for Hip Disease, designed to provide a Light Apparatus for Little Children, by Dr. Augustus Thorndike, of Boston; The Question of Excision of the Hip Joint for Tubercular Disease, and the Results of the Operation, by Dr. Harry M. Sherman, of San Francisco; Cases of Osteo-sarcoma simulating Tubercular Hip-joint Disease, by Dr. A. J. Gillette, of St. Paul; Acute Epiphysitis, by Dr. E. G. Brackett, of Boston; High Temperature in Chronic Joint Disease, by Dr. R. W. Lovett,

of Boston; The Treatment of Abscesses and Sinuses, by Dr. A. M. Phelps, of New York; The Treatment of Abscesses caused by Diseased Joints, by Dr. H. G. Davis, of Everett; The Etiology of the Deformities of Knee-joint Disease, by Dr. A. M. Phelps, of New York; The History of the Treatment of Tumor Albus of the Knee, by Dr. J. D. Griffith, of Kansas City; A Contribution to the Treatment of White Swelling of the Knee, by Dr. A. B. Judson, of New York; The Value of Fixation in Knee Disease, by Dr. G. W. Ryan, of Cincinnati; The Value of Traction in Tumor Albus of the Knee, by Dr. E. H. Bradford, of Boston; A Splint for making Traction in the Line of Deformity in Knee-joint Disease, by Dr. R. W. Lovett, of Boston; Exhibition of the Ideal Knee Splint, with Remarks, by Dr. John Ridlon, of Chicago; Exhibition of a New Knee Splint, its Action and Advantages, by Dr. A. E. Hoadley, of Chicago; The Operative Treatment of Knee-joint Disease, by Dr. De Forest Willard, of Philadelphia; Excision of the Knee in Young Adults, a Study of Twenty-nine Cases, by Dr. C. L. Scudder, of Boston; The Advantages of the Gradual Reduction of Flexion of the Knee due to Tumor Albus, by Dr. Augustus Thorndike, of Boston; Forcible Correction of the Deformities resulting from Knee-joint Disease, by Dr. J. E. Goldthwait, of Boston; Internal Derangement of the Knee Joint, by Dr. L. A. Weigel, of Rochester; The Mechanical Treatment of Osteo-arthritis of the Knee, by Dr. H. L. Taylor, of New York; The Treatment of Injuries in and about the Knee by Massage, by Dr. Benjamin Lee, of Philadelphia; The Mechanical Treatment of Light Cases of Knock-knee, by Dr. Florian Beely, of Berlin; The Manual Treatment of Bow-legs and Knock-knee, by Dr. Samuel Ketch, of New York; Observations upon the Etiology and Treatment of Scoliosis, by Dr. A. E. Hoadley, of Chicago; The Treatment of Lateral Curvature by Pressure Correction and Gymnastics, with Lantern-slide Illustrations and Exhibition of the Paper Jacket, also of an Apparatus for recording Rotation in Lateral Curvature, by Dr. L. A. Weigel, of Rochester; Cast Correction in Connection with Jacket Construction, by Dr. Bernard Bartow, of Buffalo; Demonstration in the Making of Ideal Leather Splints, by Dr. A. J. Steele, of St. Louis; Observations on Pott's Disease, with Particular Reference to the Principles of Treatment and their Application, by Dr. Royal Whitman, of New York; The Cause of Flat Foot, by Dr. Newton M. Shaffer, of New York; A Double-lever Stretching Apparatus for Clubfoot, by Dr. T. Halsted Myers, of New York; Bone Operations for the Correction of Clubfoot, based upon an Analysis of Two Hundred and Ninety-three Operations by One Hundred Operators, by Dr. H. A. Wilson, of Philadelphia; A Case of Adult Clubfoot, by Dr. C. C. Foster, of Cambridge; A Case of Club-hand, with Result of Operation, by Dr. R. H. Sayre, of New York; Exhibition of a Splint-opener for Plaster-of-Paris Splints, also other Simple Devices, by Dr. Harry M. Sherman, of San Francisco; Exhibition of an Orthopedic Bed, by Dr. L. A. Weigel, of Rochester; and Exhibition of the Improved Stretcher Splint.

The Richmond Academy of Medicine and Surgery.—At the last meeting, on Tuesday evening, the 12th inst., a discussion on shock was opened by Dr. Edward McGuire.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 5 to September 9, 1893:*

HUNTINGTON, DAVID L., Major and Surgeon, is granted leave of absence for one month.

GREENLEAF, CHARLES R., Lieutenant Colonel and Deputy Surgeon General, is granted leave of absence for two months, to take effect from August 25, 1893.

A board of officers to consist of BAILY, JOSEPH C., Colonel and Assistant Surgeon General, DE WITT, CALVIN, Major and Surgeon, and CRONKHITE, HENRY M., Major and Surgeon, is appointed to meet at the call of the president thereof at San Antonio, Texas, for the examination of such officers as may be ordered before it, with a view of determining their fitness for promotion.

KILBOURNE, HENRY S., Captain and Assistant Surgeon, will report in person to Colonel Joseph C. Baily, Assistant Surgeon General, president of the examining board appointed to meet at San Antonio, Texas, for examination for promotion.

TAYLOR, MARCUS E., Captain and Assistant Surgeon, having been found by an army retiring board incapacitated for active service, is granted leave of absence until further orders on account of disability.

SMITH, ALLEN M., First Lieutenant and Assistant Surgeon, is granted leave of absence for four months, to take effect on or about October 25, 1893.

CABELL, JULIAN M., Captain and Assistant Surgeon, is relieved from duty at Fort D. A. Russell, Wyoming, and ordered to Washington Barracks, D. C., for duty with the company of instruction of the Hospital Corps.

Society Meetings for the Coming Week:

MONDAY, September 18th: Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, September 19th: Medical Societies of the Counties of Kings and Westchester, N. Y.; Ogdensburg Medical Association; Connecticut River Valley Medical Association (Bellows Falls, Vt.); Baltimore Academy of Medicine.

WEDNESDAY, September 20th: Northwestern Medical and Surgical Society of New York (private); Harlem Medical Association of the City of New York; Medico-legal Society; Medical Society of the County of Allegany, N. Y.; New Jersey Academy of Medicine (Newark).

THURSDAY, September 21st: Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement.

FRIDAY, September 22d: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Letters to the Editor.

MR. ERNEST HART AND THE AMERICAN MEDICAL PROFESSION.

WASHINGTON, September 12, 1893.

To the Editor of the New York Medical Journal:

SIR: The people of the United States are so accustomed to having their deficiencies in manners and customs pointed out to them by English mentors, who judge them by their own local standard, that those who heard Mr. Ernest Hart in his recent addresses at the Medical Editors' Banquet and before the Pan-American Medical Congress were not surprised at the advice and correction administered to the medical profession of this country. Standing on a pedestal of his own erection, with that apparent consciousness of rectitude which can brook nothing antagonistic, and forgetting that he was the guest of those who had paid for his entertainment and were therefore his hosts, he pointed out their faults, exposed their failings, laid down the principles by which they should be guided in their intercourse with each other and with the public, told them how good and pure their English brethren were, and with an air which seemed to say "Take me for your model of a medical man and a gentleman" sat down, doubtless with the feeling of having discharged a disagreeable duty in a highly becoming and especially modest manner.

To consider all Mr. Hart's objections to our manner of conducting ourselves, which, in his opinion, places us on a lower plane than that on which our English brethren stand, would take up more of your space than you would be willing to spare. I must therefore confine myself to two or three points which appeared to particularly excite his indignation, leaving it for others to take up some of the remaining alleged lapses from good manners and sound morals which, in Mr. Hart's opinion, some of us exhibit and all of us tolerate; for, whether or not

all do the things which Mr. Hart deprecates so strongly, so long as the guilty ones retain their fellowship in the societies to which they belong all are equally under the ban, and must accept for themselves the censure which their self-appointed guide awards them.

First of all, Mr. Hart objects to the portraits of medical men being published by the secular press. Now, Mr. Editor, the newspaper in this country prints anything that its editor thinks will interest its readers. When a Pan-Anglican, or Pan-Presbyterian, or Catholic Congress assembles in a city the portraits of its prominent members appear in the daily newspapers. When the Bar Association meets, the eminent lawyers' pictures are published the next day. When the Grand Army of the Republic, the Loyal Legion, or the Daughters of the American Revolution take possession of a city, the countenances of their leaders are the following morning exhibited to the public. Even the members of the Fat Men's Association do not escape this great honor. It would be something extraordinary if the doctors were passed over. The American public have a genuine affection and respect for the medical profession. It stands high among them, and is always referred to in the speeches of welcome given by governors, presidents, and mayors as first among all in the character of their labors for mankind, in their social standing in the community, and in the love of the people. No profession—not even the clerical—is capable of exercising one half the influence which is wielded by that to which we belong. The readers of newspapers (and every one here who can read reads a newspaper) wish to see the portraits of those who are prominent and of whom they have read and heard, and the editor prints them—not to advertise those whose features are presented, but to please his patrons.

Now, even in England the portraits of distinguished scientists, statesmen, soldiers, ecclesiastics, members of royal and noble families, etc., are continually appearing in the illustrated newspapers, but of medical men never until they are dead, when, if they have been specially eminent, and particularly if they have in the whole course of their lives attended a member of the royal family, their portraits with short biographies, in which this latter fact is given distinguished pre-eminence, are published in the *London Illustrated News*, the *Graphic*, and other papers of the kind. Why is this? We do not have to look far for the answer. It is to be found in the fact that the medical profession in England is of no social or political importance. The average medical man is a little lower than the lawyer, a little higher than the tradesman; the people do not care for him.

With us, on the contrary, no class ranks socially above the medical profession; in England its members are looked down upon with something of contempt by the nobility and gentry. When the question of raising a distinguished surgeon to the peerage was considered, an eminent member of the Government said, "No! I will never consent to make a peer of a man who will . . . for a guinea." [I leave the name of the surgical examination referred to by the eminent statesman to be guessed at by the intelligent reader. It can not be mentioned in your pages in the terms employed.] And there never yet has been a medical peer.

When an American physician pays a professional visit to the highest in the land, he goes in at the front door and waits in the drawing-room till summoned to his patient. In England the question was discussed in a medical journal a few years ago of whether, when called to the house of a nobleman or that of a country gentleman, the medical practitioner should go in by the main entrance or by that used by the servants. As a matter of fact, he often enters by the back door and waits in the hall until invited to go upstairs to his patient. Think of it, Mr. Editor!

Think of the members of a learned profession being treated as menials, and think of any one, from the President of the United States down, acting in such a way to his medical adviser! The social position of the average medical practitioner in England is one of extreme degradation, and no one knows it better than Mr. Hart. Here he calls upon the President of the United States and is treated with respect! At home the *entourage* of the Queen is closed to him.

Now, Mr. Hart, finding that medical men here are held in high esteem by the general public, that their portraits are printed, and that they are interviewed by reporters on subjects of interest, takes it for granted that they are seeking notoriety. They do not interview doctors in England, and hence they should not interview them here. He does not bear in mind the fact that in this country every one who has anything to say is interviewed, and the doctors are not overlooked.

I suppose, Mr. Editor, that we all like a certain amount of distinction and the good opinion of our fellow-men, and I am quite sure that Mr. Hart is no exception to this rule. But, really, before censuring us he should have looked a little more closely into his own conduct since he has been in "our midst." Probably his portrait has never been published in his own country, nor has he ever been interviewed. But when he had been with us a little while his likeness began to appear, not only in the medical but in the lay press, until to-day I doubt if the lineaments of any medical man in this country are so well known from Maine to California as those of Mr. Ernest Hart, and accompanied too by biographies so minute and specific that the details could only have been obtained from the subject himself.

And I submit that in the matter of a notoriety-seeking publicity no American physician would have gone so far as did Mr. Hart when he entered his name on the Arlington Hotel register in this city. I give the entry *verbatim et literatim*: "Ernest Hart F. R. C. S. D. C. L. London. Editor British Medical Journal. Dean of St. Mary's Hospital."

Mr. Hart has evidently tasted of the delights of freedom. He feels himself the equal if not the superior of any one, and, with that tendency of those who have suddenly been released from bondage to disport themselves hilariously, he has plunged into excesses which, to use his own expression, would cause him to be "tabooed in London." Think of Dr. Pepper, or Dr. Hughes, or Dr. Lavista of Mexico, stringing out his medical and collegiate qualifications, his editorial associations, and his hospital appointments on the pages of a hotel register! And yet the man who does this thing lectures us on our medical manners and patronizingly tells us how we should live in order to merit the commendation of his countrymen.

Another crime which Mr. Hart accuses us of committing is talking to the public about our patients and revealing the secrets of the sick-room. He declared that we did this with "the ballet dancer, the prize fighter, and the President of the United States." I pass over the execrable taste displayed in associating the head of the nation with a ballet dancer and a prize fighter. I have only to say that when Mr. Hart made the accusation to the effect that American medical men were more guilty of these crimes than their fellows of any other nation in the civilized world, he said what was not true. In all countries the health of prominent persons in any position of life is a matter of public interest. This is just as true of England as it is of this country; for when a member of the royal family or other distinguished person is ill, bulletins are issued regularly by the physicians in attendance, so that the public is kept fully advised of the condition of the patient. In the United States, if this is sometimes done by interviewing the medical attendants, with the consent of the patient, it is only because we accomplish in

one way what in England, where they do not have the interview, they bring about in a different manner. Mr. Hart, taking English customs for his guide, finds fault with us because we do things in a different way from that to which he has been accustomed. In this he displays that insular narrow-mindedness which is so characteristic of the middle class of his countrymen. We cut loose from England more than a hundred years ago, and we regulate this and other matters for ourselves, just as they are governed by their own customs in France, Germany, and other European countries. As to our abusing professional confidence, it is an act almost unheard of among American physicians. So sacred do we regard the relations that exist between physician and patient, that many States have passed laws (the like of which do not appear on the English statute books) protecting the physician from being questioned as a witness on any point of knowledge acquired by him as a medical attendant.

Relative to Mr. Hart's opinions, which he freely expressed, in regard to physicians having a pecuniary interest in the sale of any medical preparation, it is to be borne in mind that the "surgery" is the common appendage to the average English practitioner's residence, and that he there prepares and sells medicines, not only to his own patients, but to anybody who requires them, and that we see such items in the bills that he renders to his patrons (for he regards them as "patrons") as an "enema" so much, a "draught" so much, an "anodyne" so much, and so on. Besides, we must recollect that in this country many physicians dispense and sell their own medicines and that there is a strong impression existing in the profession that it would be well if this were more generally done.

But this is not all. Mr. Hart may reply that in these cases the physician does not own an interest in any of the medicines he sells, and that his remarks applied especially to those persons who did. Now, I happen to know a good deal about Mr. Hart's connection with an article which is used largely by physicians for their patients, which is extensively advertised in the medical journals, with certificates exhibited in regard to its virtue, and which I and other physicians, at Mr. Hart's request, were mainly instrumental in introducing into this country. This article is the Apollinaris water, and Mr. Hart is or was at that time a large stockholder in the company owning the spring. A case of the Apollinaris water was sent to each of us (I refrain from mentioning the names of the others, but you will doubtless recall the circumstance), and we were requested to use it and to give our opinions of it for publication in the daily press. At that time many members of the medical profession thought it a violation of the code of ethics to give certificates of the kind. We were notified by the president of the Medical Society of the County of New York, Dr. John C. Peters, that we ought to withdraw them, and this was done after they had been published a few times. So that the only occasion on which the authorities of any medical society to which I belong have considered themselves obliged to call my attention to an alleged violation of the code of ethics was brought about by Mr. Ernest Hart in his desire to extend the sale among physicians and the public of a medicinal article in which he was pecuniarily interested!

I have not yet covered all the ground that I had intended to occupy, but there are other members of the Pan-American Medical Congress from whom you and other editors of medical journals will doubtless hear, and I therefore leave Mr. Ernest Hart at present for their consideration. I will only say that, if any American physician had made in England such speeches as Mr. Hart made on the two occasions referred to, he would have been coughed down or hissed into his seat with a degree of brutality which educated Americans never exhibit.

WILLIAM A. HAMMOND, M. D.

Proceedings of Societies.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

Held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 5, 6, 7, and 8, 1893.

(Continued from page 302.)

SECTION IN GENERAL SURGERY.

The Address in Surgery.—Dr. JOHN B. HAMILTON, of Chicago, who presided over the Section in General Surgery, after some gracefully turned expressions of welcome to the strangers, said that the rapid evolution of surgical knowledge was one of the wonders of this remarkable age, and surgeons might well proclaim that their own branch of medicine had kept equal pace with the stupendous advances made by the collateral sciences. A review of the surgical progress of the last decade alone constituted one of the most brilliant pages of the history of medicine. Still, it must be remembered that all scientific progress was based on antecedent fundamental facts discovered by slow, laborious, and often painful steps. The labors of Darwin, Huxley, Herbert Spencer, Pasteur, and Lister in the last decade had made possible the practical successes in the present one. At this time no diseased organ or tissue of the body escaped the remedial scalpel, and an examination of the discussions going on at this time showed that the questions presented were rather those of method than of original discovery. We now no longer questioned the propriety of surgical interference in previously dark portions of the human anatomy, and were concerning ourselves principally with the technique of that interference. The subject of surgical bacteriology, which included the chemical study of microbic products, had yet much to disclose; still, we already based our practice on an immortal discovery by Pasteur. The success of modern surgery was such that even with the imperfect knowledge of the bacteria now possessed no surgeon thought for a moment of comparing the results of any given operation of to-day with those obtained in the pre-microbic period. Bacteriology had added much to our knowledge of tuberculosis and had given some precision to its treatment, though this was still far from satisfactory. The carcinomata still remained one of the mysteries of medicine. We had for years studied the varying departures of the tissues from the normal to the abnormal, and the bacteriologist had in vain sought to connect the atypical structure of carcinoma with some bacterial development, but no Pasteur or Harvey had yet dawned upon the horizon to solve this mystery, to which Heaven had apparently left this generation no key. No doubt the solution of the formation of carcinoma would yet be discovered, and the study of embryology and atavism seemed at present the most probable avenues to that end. As to the future of surgery, it was likely that the questions relating to improvements in technique would occupy the surgical mind until some epoch-making discovery was reached. Some help might be expected from the collateral sciences. Transillumination of the body might yet be fully developed in our time. Instruments of precision and aids to hearing and vision would greatly assist in making our present knowledge useful. The great outlets to human life, like carcinoma, would in all probability have their genesis understood by surgeons yet unborn.

Some Defects in Anatomical Teaching in the Medical Schools of the United States.—Dr. JOHN B. ROBERTS, of Philadelphia, read a paper on this subject. He said that it was

impossible to appreciate the confused ideas of human anatomy obtained by a first-year pupil who knew but little physics, less biology, and no Latin. Such a pupil had no conception of the meaning of the descriptive Latin names of anatomical structures, yet he listened to lectures full of scientific terms and was expected to dissect the human body. To call such indecent butchery dissection was a farcical misnomer, as every demonstrator of anatomy knew. It would be much better to let such ill-trained hands learn the difference between muscle and fascia, nerve and vessel—which was about all such bungling taught these students—upon the dead bodies of the lower animals, and postpone the dissection of the human cadaver until the second or third year of the course. If it was true that much of the unsuccessful anatomical teaching was due to the poor quality of the recipients, it was none the less demonstrable that a more extended influence for evil was exerted by the inferior qualifications of teachers and the unscientific methods of teaching permitted in some schools. This was to a certain extent the result of a custom that permitted a professor once appointed to hold his position without forcible criticism until he died or resigned. The occupant of a professorial chair was practically an autocrat by courtesy. No criticism was too severe, the author said, for the system which placed first-course and second-course medical students in one class-room to hear the same didactic lectures on anatomy. Such a parody of instruction was probably unknown except in medical schools. Experience with students had abundantly shown the author that in certain things it would not be unwise to return to methods employed for teaching in the middle ages. Nude models grouped for lectures, representing the effects of disease on anatomical landmarks, were most valuable and essential in sustaining interest in clinical anatomy. He would urge that a thorough preparatory course be given to medical students in biology and in such lines of work as would better fit them for the direct work upon the human cadaver, and, all other things being equal, in this way only could we ever expect to produce thoroughly competent surgeons. While the speaker handled without gloves the present well-known glaring inconsistencies in this branch of medical teaching, he did full justice to those schools which were raising the general standard of teaching.

A Brief Splint Technology for Surgeons.—Dr. E. A. TRACEY, of Boston, read a paper with this title. He said that the object of his short treatise was to set forth in detail the particular merits of a new material suitable for use in surgical splint-making, to urge the surgeon to become the maker of suitable splints for cases occurring in practice, and to indicate lines of procedure in apparatus-making which promised rich results in general and orthopedic surgery. The basis of the material employed was wood pulp, made preferably from the crushed fiber of the poplar tree. This was rolled into sheets in such wise that the fibers intertwined in every direction and loosely, thus giving an increased ductility to the product. These sheets were further strengthened by having a fabric introduced between the layers of the pulp, or by interweaving with the short, crushed wood fibers a long jute or other tough fiber. The sheets were made of several thicknesses; for convenience they were designated by number—each figure representing one millimetre. Thus, sheet 1 had a thickness of one millimetre, sheet 2 of two millimetres, and so on. The characteristics of this material were stiffness or rigidity when dry, and plasticity with toughness when moist. Its rigidity could be increased *ad libitum* by the use of a silicate solution as a moistener. Water, or a stiffening solution, could be used to moisten the material previous to molding. The advantage of water was its omnipresence. With its aid a serviceable splint could be made.

Such a splint, however, was liable to be softened by the absorption of perspiration, or, on children, of urine; and for this reason it should be protected by a covering of oiled paper or silk, or mackintosh, or, best of all, by a coat of varnish. A solution of potassium silicate had several qualities which rendered it the best of the stiffening solutions experimented with. Sodium silicate and a mixture of potassium and sodium silicates had nearly the same qualities. Any desired degree of rigidity up to brittleness could be given the splint by using a silicate solution as a moistener—the stronger the solution the more rigid the splint. A splint rendered rigid in this wise was not affected by perspiration, nor indeed by momentary contact with fluids, as in washing. Another quality, of exceptional advantage in cases of compound fractures, was that this solution had strong antiseptic properties. The manner of moistening the blank deserved mention. It was most satisfactorily done by applying, by means of a flat paste brush, the fluid used, on both sides, alternately, of the splint blank, and repeating until the proper amount of the fluid was absorbed. Practice enabled one to judge the precise amount of moisture suitable.

Dr. DONALD McLEAN, of Detroit, while approving in general terms of the construction of the splints as advocated by the author of the paper, said that there was one great fundamental principle with regard to the construction of splints which should never be lost sight of in practice and teaching, and this was the doctrine of simplicity. He had long believed that no man was fit to treat a fracture who could not improvise a splint, no matter where he was situated or what the nature of the fracture. He then described the method of applying what he termed his "newspaper splint." In applying this splint, say to a fracture of a long bone or after the resection of a joint, the speaker simply folded one or more newspapers to the desired thickness and then molded this to the limb, surrounding the paper with cotton and the whole with a roller bandage. He said both he and his pupils had now used this method for a long time and had found it eminently satisfactory.

Dr. REGINALD H. SAYRE, of New York, said he thought the material suggested by Dr. Tracey was very serviceable, but he would have liked to see it wetted, as he could then have judged of its adaptability for molding to the form without creasing.

The Relation of the Heart and Lungs to the Anterior Chest Wall as determined by Composite Photography.—This was the title of a paper by Dr. I. S. HAYNES, of New York (to be published).

SECTION IN GYNÆCOLOGY.

The Intra-uterine Tampon.—Dr. ANDREW F. CUBBER, of New York, read a paper with this title. He alluded to the fact that the vast experience in gynecology which had accumulated in the past fifteen years had educated us to accept measures which would have been regarded in preantiseptic days as inexcusably rash. The freedom with which the curette was now used within the uterus was an illustration in point. The usefulness of instruments for the dilatation of the uterus had been generally appreciated only during the era in question, and the same was true concerning the principle of drainage in its application to the uterus. Dilatation, curetting, and drainage were the three principal foundation stones upon which intra-uterine treatment might be said to rest. From the propriety of dilating the uterus to that of packing it with a tampon was a logical step. The vaginal tampon was an indirect and often unsatisfactory means of relieving uterine trouble. The intra-uterine tampon went directly to the source of the trouble, and had opened a new field in intra-uterine therapeutics. Sterilized gauze was the material which offered the greatest

number of advantages for such a tampon. In the gravid and puerperal uterus it might be used:

1. During the period of gestation. 2. During parturition. 3. Post partum, whether the labor occurred at term or prior to it. In the unimpregnated uterus its use was for:

1. Exploratory and operative purposes in connection with disease of the uterus and its appendages. 2. Hæmorrhage. 3. Endometritis. 4. Stenosis. 5. Accumulations within the Fallopian tubes.

In the gravid uterus the intra-uterine tampon might be used in place of the vaginal tampon to bring on uterine contractions and empty the organ, or occasionally to ward off an abortion. In placenta prævia it might be of signal service. With uncontrollable vomiting, the presence of a dead fœtus, or serious mechanical obstruction in the parturient canal, the tampon was preferable to bougies, bags, or tents, for the purpose of inducing an abortion. During parturition, if the first stage was protracted, the tampon might be used to assist dilatation. It was preferable for several reasons to the means which were in vogue. Post partum, the tampon was useful for hæmorrhage, as recommended by Dührssen, also for the hæmorrhage which followed abortion, and for sepsis after either abortion or labor at term, in connection with curetting and irrigation. If there was subinvolution the tampon was indicated also, for it stimulated the uterus to contraction and produced free depletion. In the unimpregnated uterus it was useful for dilatation in the presence of new growths, whether benign or malignant, especially if slow dilatation was desirable. If the appendages were to be removed for inflammatory disease, a precedent curetting and tamponing would be useful by producing free drainage and depletion. The tampon in these cases was a substitute for the uterine tent.

For the relief of hæmorrhage the direct pressure of the uterine tampon excelled the indirect pressure of the vaginal tampon. Especially was this true in profuse menstruation in women and young girls associated with anemia. The patient should be at rest in bed while the tampon was in place, and it might be necessary to give an anæsthetic while introducing it. With hypertrophy and inflammatory disease of the endometrium hæmorrhage might also occur, and the tampon would be useful in relieving it. In endometritis with suppuration, hypertrophy of the endometrium, or inertia of the uterine muscle and stasis of the venous circulation, dilatation with drainage by means of the tampon would prove very serviceable. Stenosis was believed to be an efficient cause of the prevention of egress of fluids contained within the uterine cavity. The belief was founded upon mature experience. Its treatment with dilatation and the tampon was recommended.

The usefulness of the tampon for the drainage of accumulations within the Fallopian tubes was believed to be of limited scope, depletion of the uterus, its cornua, and those portions of the tubes immediately contiguous being the area which it was most likely to reach. If the tubes were greatly displaced and if there were ovarian or circumtubal abscesses, little or no benefit would result from the use of the tampon. The tampon should always be used with caution, but it did not follow that it always required an anæsthetic or the same adjuncts which would be called for in a major surgical procedure. There were many cases in which it was safe and proper to use it in office and dispensary practice, especially if it was not to be inserted beyond the os internum. It should usually be preceded by curetting, irrigation, and sufficient dilatation to permit of easy introduction of the gauze strips of which it was composed. The decubitus of the patient at the time of its introduction was a matter of convenience for the operator. The tampon might be safely retained from a day to three days. It was better to

renew it frequently and secure gradual distention than to pack in too much material at the first sitting. It might be so modified as to quantify, firmness, and duration of retention that there were few if any cases in which intra-uterine treatment would be admissible in which it was contraindicated.

Dr. R. B. MACRY, of Memphis, recognized the fact stated by the reader that treatment with the tampon was an advance step in intra-uterine therapeutics; a few years ago such treatment would not have been generally recognized as legitimate or proper. Men would not have dared to use it. The treatment was especially valuable as forming a feature in the system of the antiseptic method. The speaker had been especially impressed with the importance of this means of treatment in obstetric practice and in cases in which the labor had proceeded to its termination normally. In some of these cases septic phenomena appeared on the third or fourth day after delivery and curetting of the endometrium revealed the presence of more or less decomposed material. This being removed and a tampon introduced, the septic phenomena would disappear and the patients get well, where otherwise the consequences would often be serious.

Dr. G. BETTON MASSEY, of Philadelphia, favored the use of the tampon in the gravid uterus and soon after delivery, but in the inflammatory condition of the unimpregnated uterus the tampon was likely to cause retention of the secretions and consequent harm, although it was possible that it sometimes had a counterirritant and alterative effect in such cases which might be beneficial. He believed that such cases would be more satisfactorily treated by the use of the galvanic current, one pole being introduced within the uterine cavity. As to the existence of accumulations within the uterus in young and unmarried women, he did not believe in them, and hence saw no indication for the tampon in such cases.

Dr. J. TABER JOHNSON, of Washington, believed that the field of usefulness of the intra-uterine tampon was very extensive, but his experience had not led him to use it so widely as had been advocated in the paper. Its use in post-partum hæmorrhage was certainly valuable, and he had saved life with it. There were cases of this character in which the patient could not be saved by the tampon, being hopeless whatever the method of treatment. As a means of drainage in cases in which there was pus in the Fallopian tubes, he was forced to admit that it was sometimes efficient, and then the dangers attendant upon an abdominal section were averted, but the number of cases of this character was not large. The suggestion of the intra-uterine tampon in labor cases in which dilatation was progressing slowly was a valuable one, and the substitution of this means for the vaginal tampon in such cases would be of great advantage both to the patient and to the physician.

Dr. E. W. CUSHING, of Boston, thought that such a paper as the one under discussion was valuable in tending to remove the fear which so many practitioners had of putting anything into the uterine cavity. In his own practice he had not used the tampon extensively, and he did not see the need of it in cases in which curetting and irrigation were required. If such measures were used, and with thoroughness, he believed that drainage would be as efficient as if the tampon were used in addition.

Dr. A. VANDERVEER, of Albany, was entirely in favor of the principles enunciated in the paper. He also wished to lay stress upon the fact that curetting should accompany the use of the tampon. The principle of draining the uterus was correct surgically, and should be universally recognized.

Dr. J. H. CARSTENS, of Detroit, believed that the intra-uterine tampon was only another of the surgical "fads" which were introduced from time to time. He would not deny its utility, however, in a limited number of conditions, especially

after miscarriage, and occasionally after labor at term. It was not a measure which could be recommended to the profession at large, the element of danger associated with it being too great. He believed that curetting and irrigation would accomplish all that could be done with the tampon. Even if the tampon acted efficiently, it could only drain away serum and pus; tissue *débris* could be efficiently removed by curetting and irrigation. In any case he did not believe that gauze would act as a drain.

Dr. CURRIER said that the principle involved in the tampon was one with which all practitioners, whether general or special, were brought in contact, and he believed that the measure advocated was sure to be useful to all in one form or another. The objection that the tampon shut in the secretions of the uterus was of course fatal if well founded, but the fundamental hypothesis with the speaker was that the tampon should be composed of material which was pervious and would drain. The principle of capillary attraction could not be denied. If, as was stated, only serum was drained away, that was an immeasurable advantage in cases in which the uterine vessels were turgid and congested. Curetting and irrigation might be sufficient for some cases, while in others the tampon would be of additional benefit. The use of the tampon was not a remedy for all uterine disease, but its field of usefulness was large and would probably increase as its effectiveness became more generally known.

The Treatment of Extra-uterine Pregnancy after the Viability of the Child.—Dr. J. TABER JOHNSON, of Washington, who read a paper with this title, believed that the question as to the proper treatment of ectopic gestation was no longer in doubt. All means which were not surgical were to be discarded entirely. There should be no trusting to chance in the presence of this condition, no matter what period had been reached when the diagnosis was made. The rights of the child in all such cases were insignificant compared with those of the mother. If viability had been reached, one should not wait until term or until the fetus died and decomposition took place. That meant exposure to and possible death from sepsis. If it were possible, the placenta should be removed with the fetus, but this was not always essential and often involved grave danger from hemorrhage. The question of technique, when the child was viable, was still undergoing evolution. There had been thirteen recorded cases in which living children had been removed, including two by Americans—Eastman and Lusk. The important points in such cases were to act rapidly and to avoid severe hemorrhage. Two cases were narrated in which the author had operated after viability had been reached, the first in the eighth, the second in the twelfth month of gestation. The first was fatal from difficulty connected with the placenta; the second was successful, the ovum being removed entire and with very little loss of blood.

Dr. JOSEPH PRICE, of Philadelphia, stated that an American, William Baynum, of Virginia, performed the first operation for ectopic gestation, in 1790, also a second one in 1799, and both women recovered. The speaker had operated in eighty-six cases of ectopic gestation, and was prepared to say that definite rules for universal application in such operations could not be laid down. To remove the entire gestation sac, in certain cases, would be sure and immediate death from hemorrhage, whatever the skill of the operator. It was in some cases many weeks before the attachments of the placenta could be safely loosened, and in the mean time the patient must run the gantlet of sepsis. Stitching the oval sac to the abdominal wall was not to be recommended. In some cases the placenta seemed to be attached to all the abdominal viscera. It was folly or worse to attempt to remove it. He reiterated the author's

statement that there was but one treatment for ectopic gestation, and that surgical, as soon as the condition was ascertained. The life of the mother only was to be considered. The children were almost invariably deformed and imperfect, and seldom lived more than a day or two. He deprecated the use of gauze according to the requirements of the case.

Dr. CARSTENS dwelt upon the fact that the fetus was sometimes not absorbed when it had been destroyed by electricity. He had seen two such cases. He approved of the surgical treatment as the only one which was proper.

The Technique of Cælio-panhysterectomy.—Dr. G. M. EDEBOHLS, of New York, read a paper with this title. The lithotomy posture was to be used, and the vagina thoroughly disinfected, also the uterine cavity, the latter being curetted and then irrigated with 1-to-2,000 sublimate solution. The vagina and uterine cavity were packed with sublimate gauze. The patient was then placed in the Trendelenburg posture and the abdomen opened by an incision large enough to permit of the extraction of the tumor. If the tubes and ovaries were healthy and the tumor did not exceed four kilogrammes in weight, the latter should be drawn out of the abdomen and two transverse incisions of the peritoneum made, one on the anterior, the other on the posterior aspect of the uterus, each incision extending from one broad ligament to the other. The flaps should be large enough to close the opening in the pelvic floor made by the removal of the tumor, the bladder and ureters being carefully avoided in dissecting the anterior flap. The uterine arteries were then tied, the ligatures being carried as far as, but not into, the vagina. The broad ligaments were then tied off by two additional catgut ligatures on either side, external to the tubes and ovaries. The ligatures were then cut short and the uterus with the tumor and appendages was removed in one mass. The peritoneal flaps were then brought together with a running Lambert catgut suture extending from the stump of one infundibulo-pelvic ligament to the other. The abdominal wound was then closed, the patient again placed in the lithotomy posture, the packing removed from the vagina, and another vaginal packing introduced for the drainage of the supravaginal fossa. If the ovaries or tubes contained any infectious material they were removed as soon as the abdomen had been opened. If the tumor extended above the umbilicus and weighed more than four kilogrammes, the cervix should be surrounded with an elastic ligature and the tumor above it cut away. The cervical canal should then be cauterized or disinfected with sublimate and the cervix itself be removed. If the pelvis was filled with multiple fibromata, or an intraligamentous growth, the different lobes should be enucleated one by one, and the process continued as already described. The advantages of this technique were: There was very little danger of infection from the uterus or vagina, the uterine arteries were securely ligated, very little blood was lost, the peritoneal cavity was securely closed, and no particular after-treatment was necessary.

Hysterectomy; Indications and Technique.—Dr. J. M. BALDY, of Philadelphia, did not propose to discuss in this paper the questions of ætiology or symptomatology. His conclusions were drawn from the seventy-seven hysterectomies which had been performed by him. The indications for the operation were absolute and relative, and included malignant degenerations, fibroid tumors, pelvic inflammations, prolapsus uteri, and inversio uteri. For malignant degenerations the indication was absolute, the operation was always justifiable, even though relief was obtained for only a short period. Operations should be done as early in the history of the disease as possible, and the results would improve as one's experience and dexterity increased.

For fibroid tumors the indication was relative. If the tumor was small and not troublesome, and if the patient was approaching the menopause, the operation would seldom be required. Myomectomy was indicated only in cases in which the possibility of subsequent pregnancy was believed to be decided. The results of hysterectomy for fibroid tumors would be good if the cases were judiciously selected. For pelvic inflammation the indication was relative. The operation was sometimes required in cases in which relief had not been obtained by the removal of the tubes and ovaries, the uterus still remaining large and exhausting discharges continuing.

For prolapse of the uterus the indication was absolute. The question of a possible subsequent pregnancy was not to be considered in such cases. Plastic operations for such a condition were often far from satisfactory. Malignant disease was likely to ensue if such cases were not treated radically. In addition to the hysterectomy, plastic operations might also be performed.

For inversion of the uterus the indication was absolute. A combined abdominal and vaginal operation was recommended. Ligatures or clamps could be used to secure the broad ligaments, but the former were preferable. Supravaginal hysterectomy was advised for all conditions except malignant disease. The technique employed by the speaker was given in detail.

Dr. H. J. BOLDT, of New York, stated that the prognosis in hysterectomy would vary according as the supravaginal operation or complete extirpation was practiced. The result would also depend upon the size and attachments of the tumor. The speaker indorsed the technique recommended by Dr. Edebohl, with the modification that if the tumor was firmly fixed in the pelvis it was better to release its lower attachments by the vagina. In women who were very anæmic supravaginal amputation was preferable, as it involved less shock and could be accomplished in the shortest possible time. If the tumor extended into the broad ligament, no fixed rules for operation could be given; each case must be treated according to the conditions involved.

Dr. J. H. CARSTENS, of Detroit, preferred the use of the serre-nœud to ligatures in hysterectomy, the stump being secured to the abdominal wound.

Dr. C. P. NOBLE, of Philadelphia, thought the technique recommended by Dr. Edebohl perfect, but it applied only to tumors which were not massive and which were easily removed. For the more difficult cases he preferred the use of the serre-nœud with amputation at the level of the os internum, the stump being covered with peritonæum. The removal of the appendages alone would be the operation of choice with him for many cases of fibroid tumor.

Dr. I. S. STONE, of Washington, favored the operation recommended and practiced by Dr. Baer and Dr. Goffe, the ovaries and tubes being always removed with the uterus. The Trendelenburg posture was of great assistance in these operations if the tumor was movable. If the uterus and tumor were rigid, he was in the habit of using a large sound or staff with a cup-shaped attachment (which was exhibited), by which the mass could be lifted up in the pelvis, this serving as a guide in cutting away the uterus.

Dr. A. F. CURRIER, of New York, had practiced the method recommended by Dr. Edebohl with satisfactory results. It involved the minimum of shock to the patient and, according to his experience and belief, offered the most favorable conditions for complete and rapid recovery. If the patient was so reduced that a prolonged operation would be especially hazardous, the Hegar operation was to be preferred, and it often resulted in complete cure.

Dr. H. O. MARCY, of Boston, called attention to the method of enucleation of pelvic tumors recommended years ago by Miner, of Buffalo, also to his own work and recommendations in this field which he had first advocated in 1880. He always preferred to leave the cervix uteri if possible, as it was a means of strength and security to the pelvic floor.

Dr. E. E. MONTGOMERY, of Philadelphia, objected theoretically to the extraperitoneal method, but it was demanded in some cases, especially those in which rapidity of operation was essential. For the smaller tumors the method described by Dr. Edebohl was excellent. For inflammatory conditions of the uterus in which only a portion of the organ was involved he preferred to remove the diseased portion and leave the remainder.

Dr. L. S. McMURTRY, of Louisville, said the discussion was an evidence of the progress which had been going on in the consideration of the subject at issue. Fibroid tumors were no longer considered harmless or insignificant. The form of operation which one would choose was largely the result of training and experience, but one should not be prejudiced in favor of any particular operation to such an extent as to prevent his seeing and profiting by the favorable features of other methods. Hysterectomy would always be a serious and difficult operation whatever method was followed, and there were some cases of fibroid tumor which were entirely inoperable if the safety of the patient was considered.

Dr. J. TABER JOHNSON, of Washington, advocated the Hegar operation for many of the cases of fibroid tumor. In twenty-two cases in which he had operated bleeding had been permanently checked in every case but one.

Dr. EDEBOHL objected to the recommendation of releasing the attachments of a fibroid tumor by vaginal incision in combination with the abdominal method. The time consumed in operations of the character described would depend upon the skill of the operator.

Dr. BALDY stated that he had reached his conclusions after a trial of all methods, and so justified his statement that those he recommended were the best. The vital questions at issue were those of sepsis, shock, hemorrhage, and the time consumed. All conditions were, in his judgment, met most favorably by the extraperitoneal method.

A Plea for the Early Diagnosis and Prompt Electrical Treatment of Fibroid Tumors of the Uterus was the subject of a paper by Dr. G. BETTON MASSEY, of Philadelphia. The ætiology of the fibroid condition, or fibrosis, was obscure. The process was allied to inflammation; it was a perversion of the nutritive supply, an affection of a local trophic process. It simulated metritis, especially the chronic form. A fibroid of the uterus was almost like a foreign body in the pelvis; hence it excited symptoms in its early stages and should receive appropriate early treatment. Ovarian disease was often immediately dependent upon such a process. The existence of this condition was sometimes revealed at a very early period by the use of electricity, and might be cured at an early stage by such means. But in many cases the disease could not be thus made out, and the process was far advanced before it was discovered. It was not always essential that strong currents of electricity should be used in treating this condition. The author had treated many cases for periods ranging from a year to six years. He believed that all the patients had been benefited and some had been cured. If a tumor had existed a long time, especially if it had become cystic or had suffered inflammatory changes, electricity was not indicated.

The Results of Vaginal Hysterectomy.—This subject was discussed by Dr. A. J. MCCOSK, of New York, who gave a record of his personal experience. He believed that four years

should elapse after an operation for cancer before a patient could be considered cured. Even after such an interval recurrence might take place, though rarely. If infiltration into the broad ligaments had occurred, radical treatment was out of the question, as a rule. If the uterus was twice as large as the normal unimpregnated organ, the vaginal operation was impracticable. There could be no fixed plan for the treatment of all cases. To secure the broad ligaments, the author preferred ligatures to clamps, but the latter were sometimes required in emergencies. Fine silk was preferred to catgut as a ligature material. If the disease was very extensive, a high cervical amputation and cauterization were indicated, but only as a palliative. The sacral operation was not favored. For prolapse of the uterus, plastic operations would usually suffice, but exceptionally hysterectomy was indicated. Even if hysterectomy was performed, the vagina would usually protrude again in from three to six months unless plastic operations were also performed. If prolapse recurred, an abdominal section might be made and the vagina be drawn upward and attached to the abdominal parietes. The hæmorrhage from the vagina was often troublesome when the uterus was removed for prolapse.

Cavernous Angelioma of the Uterus removed by Vaginal Hysterectomy.—The case was reported by Dr. H. J. BOLDT, of New York, and the specimen was unique. The condition was to be distinguished from cavernous myoma, which was not of uncommon occurrence. The uterus had been removed on account of obstinate hæmorrhage, which was not relieved by repeated curetting.

Vaginal Hysterectomy.—A paper on this subject was read by Dr. E. E. MONTGOMERY, of Philadelphia. Complete extirpation of the uterus for cancer always held out better prospects of permanent cure than an incomplete operation. If the disease was limited to the uterus, the fact being determined by its mobility and the absence of induration in the contiguous tissues, there should be no question as to the propriety of an operation. The author did not favor the operation for inflammatory conditions of the pelvis, as recommended by Péan and Segond. It was sometimes warrantable for myoma of the uterus, if the tumor was small but very troublesome. The symptoms which indicated cancer of the uterus were pain, hæmorrhage, and a watery offensive discharge from the uterus. The speaker favored the use of clamps for securing the broad ligaments; they were easy to apply, and usually their use was not accompanied with hæmorrhage, but they might give rise to pain. The danger of wounding the bladder and ureters must always be considered. The author had operated twenty-one times for cancer, and all the patients but one had recovered.

Dr. HOWARD KELLY, of Baltimore, urged the importance of seeing cases of cancer of the uterus before the disease had become extensive. Women should be examined with reference to this condition at stated intervals after confinement, at least as often as once a year. He was convinced that the disease usually developed in cervixes which had been badly torn during labor. Curetting and cauterization would often be very helpful in the advanced cases. The speaker's method of operating was described in detail.

Dr. O. P. NOBLE, of Philadelphia, thought vaginal hysterectomy was very rarely indicated for prolapsus; plastic operations were usually efficient in his experience.

Dr. G. M. ENEBOHLS, of New York, believed that vaginal hysterectomy was indicated for prolapse only when there was a suspicion of a developing neoplasm, or the uterus was so large that complete reduction was not easy. If extirpation was performed, plastic operations should be done at the same time.

Dr. BALDY expressed his decided objection to the use of clamps in hysterectomy. He had lost two patients from hæmor-

rhage on whom clamps had been used. If the broad ligaments were stitched to the vagina after the uterus had been removed for prolapse, a recurrence of the prolapse would not take place.

Dr. McCOSKIR expressed his preference for silk rather than catgut as a suture material, as it was more easily made aseptic.

Dr. MONTGOMERY stated that he preferred clamps in hysterectomy on account of the saving in time which resulted. The Greig Smith clamp would never slip.

The Present Status of our Knowledge of the Pathology of Pelvic Inflammation, with Special Reference to the Anatomy and Treatment of Pelvic Abscess.—Dr. R. B. MAURY, of Memphis, Tenn., read a paper upon this subject. He defined pelvic abscess as any collection of pus within the pelvis, no matter what its anatomical relations might be. The definitions of pelvic inflammation, as stated by Thomas and Emmet in their works on gynecology, were compared with the views which now obtained. Pelvic cellulitis was now known to be an acute inflammation which might accompany puerperal septicæmia or occur as the result of surgical procedures upon the uterus or vagina. It was also known that it seldom occurred, even in the puerperal state, at least to such a degree that the exudation was appreciable to the examining finger. Death resulting from septic conditions following surgical operations upon the pelvic organs usually signified peritonitis, not cellulitis. But pelvic cellulitis of moderate intensity and extent was frequently associated with pelvic peritonitis, the former not being recognizable at the bedside. The existence of such a condition as chronic pelvic cellulitis was doubtful, and its clinical recognition quite impossible. The great importance of pelvic peritonitis associated with disease of the uterine appendages had been clearly pointed out by Bernutz. The purulent collections which were to be considered by the author were those which resulted from inflammation of the pelvic cellular tissue, salpingitis, oophoritis, and pelvic peritonitis. Abscesses in the broad-ligament cellular spaces were rare, and their anatomical relations were not usually reported with sufficient accuracy. The great majority of pelvic abscesses were intraperitoneal. During the prevalence of the old ideas concerning pelvic cellulitis such abscesses were attacked through the vagina or by an incision extending to the cellular tissue in the abdominal wall. In exceptional cases such treatment might still be entirely proper, especially for the extraperitoneal abscesses. For those which were intraperitoneal the proper method of treatment was by abdominal section, with removal of the abscess sac. The Péan-Segond method of removing the uterus *per vaginam* in treating such abscesses merited entire disapproval.

Dr. W. G. BERNAYS, of St. Louis, wished to correct a misapprehension which probably existed in the minds of the reader of the paper and of others concerning the Péan-Segond operation. The plan of the operation was not to remove the entire uterus, but only such a portion of it as would enable the surgeon to reach the pelvic abscess with his finger or an appropriate instrument. He had done the operation three times, and believed that pelvic abscesses could be better reached and treated by such a method than by abdominal section. He further believed it would ultimately supplant the abdominal method of treatment.

Dr. J. H. CARSTENS, of Detroit, preferred the abdominal method to any form of vaginal treatment. The old method of vaginal incision often left pockets of pus unopened, while the Péan method was a groping in the dark, with unnecessary mutilation of an organ besides.

Dr. J. TABER JOHNSON, of Washington, had had no experience with the Péan operation, but the description of it did not prepossess him in its favor. He had never seen a cure in those cases which were attacked by vaginal incision.

Dr. C. P. NOBLE, of Philadelphia, had seen six cases of undoubted abscess of the broad ligament, the tubes and ovaries being uninvolved. All the cases were puerperal. He believed that in some cases of pelvic abscess the conditions were so unfavorable that the pus sacs could not be safely removed.

The Relation of Urinary Conditions to Gynecological Surgery.

This paper was by Dr. CHARLES P. NOBLE, of Philadelphia. The condition of the kidneys in all cases which were to be subjected to surgical operations upon the genital organs should be carefully studied in advance. An analysis of five hundred cases in the Kensington Hospital in Philadelphia showed that albuminuria was present in ten per cent. of them. The urine in such cases should always be drawn with the catheter, as otherwise errors might occur from the presence of vaginal products. The presence of albumin in such cases was not always to be considered an evidence of serious kidney disease; indeed, it was often the result of interference with the metabolism of nitrogenous food products. The condition was not dangerous when the albumin was due to the pressure of a large abdominal tumor, neither was the presence of tube casts in such cases always of serious significance, but all such cases should be frequently and thoroughly examined. If it should be found that the kidneys were seriously implicated, a prolonged operation would be contraindicated. Death might supervene in such serious cases soon after the operation, even though the immediate effects of the operation were recovered from. The quantity of urine passed by patients during the first few days after abdominal operations had been carefully noted in a large number of the author's cases, and the results tabulated. Even though the operation was a simple one and the kidneys were without discoverable lesion prior to it, suppression of urine would result in occasional instances, with a fatal issue. Severe and prolonged operations on patients with contracted kidney usually resulted fatally. The subject of the influence of ether and chloroform as anesthetics in abdominal operations could not be thoroughly discussed by the author, as he had not yet reached definite conclusions upon this subject.

Dr. A. LAPHORN SMITH, of Montreal, had found that albumin would usually disappear after an operation in the class of cases under discussion, just as it did in pregnant and puerperal women after the termination of labor. An explanation of the small quantity of urine passed for several days after an operation might be found in the small quantity of water which was usually given to patients. He believed that ether was more irritating to the kidneys than chloroform.

Dr. J. TABER JOHNSON, of Washington, had often experienced much anxiety on account of the small quantity of urine passed after operations, and was relieved by the statements made by the reader of the paper. He was thoroughly impressed with the sense of the necessity of prolonged investigation of a patient's kidneys before an abdominal operation was attempted.

Dr. EUGENE BOISE, of Grand Rapids, Mich., believed that suppression of urine after an operation was not necessarily due to serious kidney disease, for there were compensatory conditions in the profuse perspiration which sometimes followed operations and the unloading of serum from the abdominal vessels into the peritoneal cavity. The flow of urine was frequently increased if sufficient quantities of fluid were injected into the rectum after an operation.

Dr. CARSTENS, of Detroit, thought that ether as an anesthetic was often the source of renal injury, but the primary cause of the trouble was to be found in a lesion of the renal plexus. Relief from suppression of urine might sometimes be obtained by means of steam baths, injections of fluid into the rectum, and the hypodermic use of strychnine.

Dr. I. S. STONE, of Washington, thought the subject of the greatest importance. There were cases in which the condition of the kidneys could not be determined in advance. He had once found pus in the renal pelvis of a patient post mortem, though prior to the operation careful analyses of the urine had been made.

Dr. E. W. CUSHING, of Boston, had a feeling of helplessness in the presence of renal complications after operations. Was it not probable that sepsis was present in some of the cases prior to an operation and first manifested itself by renal lesions after the operation? He thought too much stress was laid on the probable influence of the anesthetic in these cases. Again, ligation of the ureters, cystitis, and the use of dirty instruments were all possible explanations of the renal complications. The kidneys were sometimes infected by tumors which were cystic or gangrenous.

Dr. NOBLE admitted the possibility of renal irritation by anesthesia with either ether or chloroform. Ether was not eliminated by the kidneys, however, as chemists had shown. To distinguish between septicaemia and kidney disease was certainly not easy. As had been suggested, a diagnosis of kidney disease before an operation was sometimes impossible. Arterio-capillary fibrosis was a possible condition in some of the cases with renal phenomena. Suppression might also be due to the length of the operation, to the exposure of the body to cold, or to shock.

(To be continued.)

Miscellany.

The Psychology of Queen Christina, of Sweden.—In the July number of the *Alienist and Neurologist* there is a translation, by Dr. Susanna P. Boyle, of Toronto, of an article by Dr. F. De Sarlo, from which we extract the following passages:

"Christina's character is of so complex a kind that at first view it seems to have been formed in order to defy all the definitions and schemes of modern psychological analysis. We do not intend to enter into all the details of her life, but merely to note such important events in it which have weighed with us in arriving at our judgment of her character. To proceed in order, then, we begin by fixing our attention for a moment on the characters of her parents. Her father, the last of the Vasa dynasty, was 'that snow giant' (as he was called by the Emperor Ferdinand, alluding to his golden beard and white complexion) who, by victory after victory, reached the center of Germany, into which, for several centuries, no foreign conqueror had dared to penetrate, and afterward died heroically at the battle of Lutzen. He is judged by history to have been one of the greatest men of his time; of a high, but not haughty spirit; proud, but generous to his enemies; just and sincere to his allies; he assumed in time that air of condescension of superior men who feel themselves above those by whom they are surrounded. His instinctive piety gave a tint of religious exaltation to his courage and made him confound his cause with that of Heaven and consider himself as an instrument of divine vengeance. His numerous victories never, however, succeeded in intoxicating him to such an extent as to deprive him of his clear view of things, for in no researches can we find any notice of a lack of equilibrium in his character, and no baseness or barbarous acts cloud in any way the splendor of his glory, though he lived continually in the field of battle, and had before him as examples the unheard-of atrocities of Tilly and Wallenstein.

Hence, from her father Christina could inherit only good qualities, such as genius, courage, energy, and a tendency toward the magnificent. Her mother was Eleanor, daughter of John Sigismund, Elec-

tor of Brandenburg. She was beautiful, but of a vacillating temperament like her father, excessively vain, weak-willed, and, it appears, but little educated, or at least she occupied a much lower intellectual plane than did her husband. Before deciding how the different characteristics of her parents were fused in Christina, we will speak of the education she had, especially in her early years, for the two influences, hereditary and educative, go hand in hand."

"Christina had always great power over her father—so much that even when she was quite a child he took her with him on hunting expeditions and into the field of military manoeuvres, making her assume, probably for convenience, masculine dress and having her ride at his side. From this it may be deduced, on the one hand, that Christina in her early years received a masculine education, and on the other that she soon became *Penfant gâté* of her father. What would Christina have become had her father not been compelled to leave her when she was four years old, in order to go to the Thirty Years' War? We shall not attempt to solve this problem, but certainly, judging from what she afterward became on account of the absence and death of her father, it may be argued that her life would have been a very different one. However, Gustavus Adolphus died and Maria Eleanor kept her apartments always in mourning, their darkness being broken only by melancholy ceremonies. At the head of her bed she had suspended a golden casket containing the heart of the deceased. She would lament and weep for hours and wished the young Christina to assist at these functions, making her sleep with her in order to have her always present at these scenes.

"Besides the five great crown officials, assigned by her father as tutors, there were others who contributed, as Claretta observes, to give her false conceptions of things. There is no doubt, however, that Christina was by nature very precocious, for the fact that she became very soon disgusted with the atmosphere in which her mother and tutors wished to compel her to live proved that she had already reached a degree of development beyond that proper to her years.* She rebelled and refused to follow the same kind of life, and gave herself up to her studies. Stearn considers that these studies were absolutely preternatural. At ten years she gave twelve hours a day to mathematics and languages; at sixteen she had already mastered six languages, and understood literature, music, and archeology; at eighteen she presided over the Senate. She wished to understand everything, for nothing was difficult to her, so versatile and highly gifted was she. Just as her father's conquests and victories had been unlimited, so she seemed to think there were no bounds to knowledge; and it is probably no exaggeration to affirm that Christina surpassed in talent and knowledge all the noted women of history. Although she was strong and robust, the dedication at ten years of age of twelve hours a day to mathematics and languages was not a thing which could be done without leaving some effect, and it seems to us this must be given a place as one cause of subsequent exhaustion.

"Every one knows what a great influence is exercised over the minds of the young by the people surrounding them, and it is noteworthy that Christina was surrounded by individuals who were in every way unsuited to her. Instead of being with people of her own age and sex, she was always with adults and men, who could only admire her and thus favored her inclination to immoderate studies and prolonged labors. Thus the education imparted to Christina, which was of the most foolish and erroneous kind, gives us in part the key to her future life. A child who should have devoted the greater part of the day to pastimes and recreations was placed instead in totally unsuitable surroundings. It may be imagined what a mistake was made when a child of such precocity as Christina was placed in relation with scientists, such as Grozio, Cartesio, Vossio, Ireisheim, etc., and also with a French doctor, Michon, *alias* Bourdelot, the son of a barber, who, with

his arguments and vacillating principles, succeeded in gaining the esteem of the young queen."

"The fact is that at the age of twenty-two years she presented a notable change in her character, and, while at first she had been all intent on governing, she now became exhausted and tired and desired to lead her life according to her own fashion; while at first she had shown energy and strength of will in attending to the well-being of her subjects, she now showed herself frivolous and immoral, so that we seem to recognize in her a second personality superimposed on the first. What reason can be given for this change? Is it to be attributed to hereditary influences? It is known, in fact, that children not only inherit contemporaneously in a mixed fashion the characters of both their parents, but can also inherit for one part of their life the character of one, and for another that of the other parent. In this case Christina in youth and adolescence presented principally the characteristics of her father, and in maturity those of her mother, becoming vain, frivolous, extravagant, intriguing, and capricious. It is certain, however, that the fundamental qualities of her father (knowledge and energy) were never lost, but were, so to speak, covered and overpowered by those of the mother. Or is the above-mentioned change in character to be attributed to the difficulties met with in her government and the disillusionizing consequent thereto? One of her biographers says that she had a great mind not weakened by struggling, a tendency to the great and magnificent, but at the end '*rimace vinta*.' We, truly, can not give preference to one cause more than another. To us it seems that both, though we attach greater weight to the hereditary influence, served to prepare the way for the development of the two most important events of Christina's life—viz., the abdication of the throne and her abandonment of the Lutheran religion.

"At first sight to search, to explain such events, seems an exceedingly difficult undertaking; but if we take into account, on the one hand, the changes which Christina's character underwent when she was twenty-two years of age, and, on the other, the atmosphere in which these events developed, all becomes clear and evident. Christina had one of those enthusiastic natures, passionately devoted to their ideals, for the attainment of which they will make any sacrifice whatever. She had inherited from her father the faculty of bringing every energy to bear on the completion of the most difficult enterprises, and it was in consequence of this that in her youth she dedicated herself entirely to the administration of the government of her country, in which she gave proof of uncommon strength and wisdom. She had hoped that her efforts would be crowned with success, and that she would be able to succeed in really giving to Sweden that importance in Europe which she had eyed longingly from childhood; but she soon perceived that her dream would never become a reality, and it was her bright intellect, which never lost its clear vision of matters, which contributed in great measure to undeceiving her. A less ardent, less cultured nature would probably have resigned itself to the course of events, would, so to speak, have allowed the stream to run its course, and would have called for aid from influential personages; but Christina, who, as we have already said, at her entrance into maturity began to present the characteristics of her mother (frivolity, vanity), neither had the strength to fight nor could resign herself to her fate; hence the resolution, which appears so strange, to abandon the throne; which resolution was merely the reaction of her spirit to the obstacles opposed to the realization of her ideal."

"Now [after her abdication] there was an almost complete transformation in her; her ideas of liberty and complete independence at last found ways to express themselves, without being first detained in the Nesso chamber of court ceremonial. Her mind had now shaken off the burden of thoughts of the administration of the Government, and she felt for the first time really mistress of herself. And, just as much as her tastes and inclinations in the past had been repressed and kept in abeyance, just so much in the reaction now they claimed to be gratified, and every day it may be said that she imposed on herself new duties; felt new needs of which in the past she had probably never even thought. Everything that was methodical, measured, or limited fatigued her, everything that was formal or conventional bored her;

* How independent and indifferent she is shown by the following anecdote: Her mother having one day reproved her by saying that had her father lived he would not have consented to so many pastimes and amusements, she did not hesitate to answer that in that case it was better he was dead. We can not deny that such a reply from a child betokens a character far from affectionate.

all the '*sericit nordica*' (northern gravity) must give way before the great disturbance of her mind, which now desired to wander as freely in the field of art as in life. From this arose the thought of abandoning her native land and going to Italy—that country in which art and Nature seem to have united to make the sweetest of dwelling places.

"Christina at this time felt the need of cutting herself loose, so to speak, from all that bound her to her past life; she, wishing to destroy all that northern gravity, naturally felt that in order to do this it was necessary to abandon the principles on which this was founded, and was the cause of it. Such a foundation was, as every one knows, furnished by the Lutheran religion. Hence it was that Christina hesitated not an instant to form the resolution to complete the act which would make her an alien to her native land, and which must bring her on the one hand many friends and adorers, but on the other furious enemies. . . . An abjuration made by a woman like Christina, intelligent and cultured, is a matter worthy of our attention, for it is a complex psychological phenomenon, especially when we consider that she who was led to take such a step was the daughter of Gustavus Adolphus, who was known as the 'Paladin of Protestantism.' Many have said, perhaps in order to make trouble, that Christina's abjuration was only one of the numerous peculiar actions she was in the habit of doing; others, that it was merely an act of convenience, so that she could go to Italy and be received and *fêted* by the Pope; others (Stearn), that it was merely her artistic soul that caused her love of Catholicism, but that she was really an atheist. What is the truth? Certainly Christina was not possessed of a very religious nature, and to this her excessive culture had in part contributed, but, above all, her intimacy with the atheistic Dr. Bourdelot, her favorite, was to blame; but it does not seem to us that Christina was a thorough unbeliever, and that it was an act of hypocrisy on her part to solemnly embrace Catholicism, when we take into account her great mental gifts, among which were sincerity and loyalty, of which she proved herself possessed always. To us, therefore, it seems that Christina had a fund of religiosity, which had assumed a determinate and stable form, and that she, finding herself in a struggle with use, custom, and northern traditions, instead of giving the preference to the Protestant form of religion, felt herself attracted to Catholicism, which had the advantage of appealing to the artistic side of her nature. She who so loved all kinds of amusements and diversions allowed her fancy to be taken captive by the externals and all the luxuries which surrounded Catholicism. But certainly neither had the Pope cherished the illusion of making an ardent devotee of her, nor had she any hesitation in exposing the machinations of the popes, cardinals, bishops, and priests."

"It would take too long to give in order and in detail all the events which took place in Italy during the sojourn there of the Queen of Sweden; this has been admirably done by Claretta. It is of interest to us only to note in passing such deductions as may be drawn from his narrative regarding the psychology of Christina. The characteristic which strikes us most forcibly is her great fickleness and contradictoriness; to-day she desires that which she did not wish yesterday, and to-morrow she will certainly not want what she desired to-day; at times she is disgusted with the different popes, and we see her showing herself as energetic, careless, disrespectful, and sometimes also ungrateful, but only allows a few days to pass and behold she becomes humble, prompt to bow her knee and implore pardon. In the course of a few more days Christina again becomes bad-tempered, irritable, despondent and disposed to cast everything in the teeth of the Pope. The contradictions in which she enveloped herself were absolutely innumerable, and indeed it may be said that her mind lived by contradiction; she loved simplicity, but woe to him who came before her less the smallest particular of ceremonial—so much so that the greater part of her troubles with the ambassadors of the various European powers, and with the members of the Roman College, proceeded from faults of this kind. She abandoned her kingdom in order to live a free life, and full of faith and enthusiasm she went to Rome, but after a little she became tired of this and wished to return to rule in her own country, but not being able to do so, she even thought of laying claim to the throne of Poland." . . .

"Another characteristic brought to light by the account of Chris-

tina's actions during her sojourn in Italy is the strength of which her actions all speak. She had a proud desire to do everything differently from other people, to appear singular in all her actions as in all her tastes and opinions. The greatest disrespect which could be shown to her was to imitate her; in such a case she either flew into a rage or suddenly had recourse to some other stratagem by means of which she would be the only person to do things in a particular way. It was for this that she showed such a mania for protecting the worst kind of wretches and all those elements which constituted the refuse of society.

"It is not necessary to dwell long on the tendency of the Queen to pastimes, diversions, and feasts, for we have touched on that above, but it would be well to call attention to her egoism, which, it may be said, transcended all her other characteristics. No lasting or deep affections are met with in her, outside of her love of her own personality; if ever any trait of generosity is found, it is always done with a utilitarian view, hoping that the good she did to others would reflect on herself. More than once she showed herself ferocious and inhuman, and it was always when 'Her Most Gracious Majesty' had been in some way offended. And, though recognizing that the finances of the Pontifical Court were at that time in anything but a prosperous condition, and that in order to cover her heavy expenses they must burden the poor Romans with taxes in one disguise or another or neglect their looks of benevolence, she never hesitated to demand money from the various popes, and they for political reasons were compelled always to give it. The sojourn of Christina in Italy was indeed a calamity, as far as the pontifical finances were concerned.

"So, to make a *résumé*, we may say that the leading characteristics which Christina showed during her stay in Italy until her death, at the age of sixty-three years (in 1689), were immorality, fickleness, vanity, a mania for making herself 'interesting,' numerous contradictions of character, and egoism. This is sufficient to enable us now to begin to formulate briefly our judgment of her mental condition.

"It must be agreed that the psychological physiognomy of Christina of Sweden is not one that appears complete at first sight and on a superficial examination; on the contrary, it presents many aspects, and, like a polyhedron, has many faces. The fact that she succeeded so soon in finding her level is a proof that her intelligence found itself in antagonism with the surroundings in which she lived; she did not understand, in fact could not adapt herself to, the knavish customs, the numerous prejudices, the empty formalities which, especially in matters of religion, at that time predominated. She felt herself at a disadvantage in the midst of those cardinals and prelates whose lives were so at variance with the spirit of Christianity. The politics of the time also aroused her anger, and nothing was more common than to see her applaud a generous act on the part of some State or blame some indecorous action. Any one considering Christina only from this point of view could do no less than judge her a woman of genius who was far in advance of her time. But, besides her high intelligence, her love of classical studies, her taste for the arts, there must be noted her tendency to intrigue, to commit mean acts, to condescend to acts unworthy not only of a queen, but of any gentlewoman, and to push herself into matters which did not concern her. All these things prevent her from being placed in any ordinary classification. Thus the lack of uniformity in her thoughts and in her actions is the fundamental characteristic of Christina's mind, a lack of uniformity which shows a weakness of will-power and energy and of that particular power which constitutes the nucleus of a human personality. Without this, indeed, it is impossible to have unity of thought and act which makes an individual at harmony with himself. Christina had normal perceptions (she never had visions nor hallucinations), a lucid, quick intelligence (as shown by her writings), but a weak will.

"And emotivity? Regarding this we find in her what is present in all those who lack those inhibitory powers which contribute, on the one hand, to give unity to the character, and, on the other, impede continuous and partial reactions to single impressions, and, being an obstacle to incessant loss of energy, cause the emotions to develop in the mind in a slower and more orderly but more intense manner; she had also a tendency to go in search of all those extraordinary facts which, by their singularity, were capable of stirring up her whole nature. In such a character is linked the restlessness peculiar to the queen, which,

fearing neither discomfiture nor repulse, ventured always on something new, and also her mania for going in search of exceptional cases.

"It has been said that Christina was exceedingly imaginative and fantastic, and this is so. The vastness of her culture, the brightness of her mind, and the uninteresting surroundings in which she lived, all contributed to make her so. The great difference between her ideals and her real life would naturally carry her away and advance her further into the realm of dreams."

"Now, in the case of Christina, is a definition of her mental disease possible? Is it possible to make a diagnosis of her affection? We believe and frankly say that the psychological characteristics met with in her authorize us to state that Christina, in our judgment, was the victim of *hysteria*. Nervous pathology, indeed, admits a peculiar disease, characterized by a complexity of the most varied phenomena, of which there are a few which are capable of leading us to a safe diagnosis. These are: egoism, vanity, contradictoriness, moral insensibility, a tendency to be fantastic and to wander, frivolity, and a lively intelligence, all of which may for the most part be regarded as consequences of a weak will.

"And with this the psychopathology of to-day would have made answer. Now it seems to us that there is room here for investigation, as to how far modern science can be benefited by such an answer. In the past it appeared quite an advancement to be able to judge by means of a formula or to incorporate in a scheme a given historical figure which till then had been regarded as extraordinary; and it can not be denied that thus, on being successful in classifying among diseases of the human brain some of those which had been reputed 'divine actions,' we have shown a progress in knowledge. But now a new exigency presents itself; we may content ourselves with a simple definition of the mental state of an historical personage, but we wish to know in what relation the development of a given form of mental disease stands to the surroundings in which the person lived, as, on the other hand, it is necessary to know the part played by the disease in the accomplishment of the person's acts. It is only after having answered such questions that we can be said to have interpreted an historical individual by the light of psychopathology. If we had stopped at the simple definition of Christina's mental state, characterizing her as hysterical, what should we have done? We should have expressed comprehensively, in a single word, the whole of her psychological character, but science and history would have gained nothing. Hysteria, in fact, expresses a group of the most diverse phenomena, which may be determined by numerous causes, and until we have succeeded in ascertaining these we signify by the word *hysteria* only a number of symptoms deprived of any real value. In the case of Christina, for example, that assemblage of symptoms (egoism, vanity, frivolity, weakness of will) which we have called hysteria, may well have been due to other causes, and also have been produced very differently from those of any other form of hysteria; and the task of historical psychopathology is to exactly place *en evidence* the cause and evolution of a given pathological form in relation to historic surroundings. It must be borne in mind that morbid conditions of the mind are not like common diseases, each of which has a cause, progress, anatomical basis, course, and fixed termination. In every case, on the other hand, it may be said that there is something peculiar and special, for each person has a different mental constitution and lives in different historic and social conditions. And if we consider the events of Christina's life we are at once convinced that, had she been educated differently, and had she been able to apply her genius and excess of mental energy to great and glorious enterprises, she would not have appeared to us as hysterical. Hysteria, indeed, in her was not something decreed by fate which she had inherited from her ancestors, nor had it followed one or more definite causes, but it represented the epilogue of a great battle of elements and the final result of the great opposition which her intellect encountered in the surroundings in which she lived.

"Hysteria, therefore, represents the termination, the consequence, the causes of which may be most diverse, and until we have determined these we can not be said to have interpreted psychologically a certain historical period, but only to have expressed in a word what was formerly done in more than one. What fundamental difference exists

between saying Christina was hysterical and affirming that she was of a giddy, egotistical, capricious, fickle, weak character? None, it seems to us; but if, on the contrary, we can show in what way her mind, in given conditions, developed gradually; if we try to show clearly how her mind, partly by hereditary influence, had been constrained to model itself into a certain shape, and if, finally, we follow the action which the spirit of her century exercised over her will, then shall we have reconstructed, scientifically, an historical figure. In such a case the diagnosis of hysteria becomes an accessory fact to a long series of matters which are very important and worthy of recognition. Hysteria is not, therefore, the fundamental cause which determined the course of events of Christina's life, and gave to it its peculiar psychological physiognomy, but is only the external expression or the effect of profound internal factors. It is clear, however, that we can not deny that many of Christina's acts must be attributed to the hysterical turn of temperament which developed in her; but these are only secondary, accessory, or subsequent."

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Original Communications.

TENORRHAPHY,

WITH CLINICAL REPORT OF CASES.

By FRED. B. LUND, M.D.,

BOSTON.

WOUNDS and injuries involving the section or rupture of tendons present to the surgeon cases of great interest and often of the greatest difficulty. Being commonly caused by accidents in the employment of tools or machinery, by cutting or crushing implements, the greater proportion of cases occur in laboring men, and concern the tendons of the hand or wrist. The usefulness of a hand depends so entirely upon ability to move the fingers freely, to grasp and let go, that the damage caused by a single knife stroke which severs the tendons of the wrist or the palm may entail total disability in a trade. In these cases the livelihood of the patient and of his family, if he has one, depends upon the success of the surgeon's efforts to restore the lost function.

Until recent years such injuries have been classed among the most hopeless which were presented to the surgeon. In preantiseptic days, owing to the well-known rapidity with which septic inflammatory processes spread along the tendon sheaths, the danger to life in these injuries from lymphangitis, septicaemia, etc., was not a small one. Fortunately if he escaped such dangers as the result of the injury in the first place, the patient was doubly so if no such untoward result followed the efforts of the surgeon (when such were made) to repair the damage. Hence the well-known reluctance of surgeons to attack these injuries in preantiseptic days. So great was the danger of septic infection that they rarely interfered, such interference meaning really the risk of a life to restore, often partially, the use of a limb. A successful tendon suture contributed more to a surgeon's reputation for good fortune than good judgment.

In preantiseptic times, then, the section of a tendon meant, at best, the permanent loss of function of the member supplied by it. The ends separated by the action of the muscles became so fixed and anchored in a firm mass of cicatricial tissue that, instead of enabling its own muscle to move a limb, the tendon held the limb fixed, and effectually prevented the opposing flexors or extensors from acting. The mass of cicatricial tissue about the severed ends often involved neighboring tendons, if they ran close to the injured one, so that section of a single deep flexor at the wrist, for instance, might involve disability of all the other fingers of the hand. It is well known that the co-operation of its opposing extensor is as necessary to the action of a flexor as its own free motion, and *vice versa*.

When we consider the dangers involved in suture of tendons before antiseptic methods were introduced, we will not be surprised to find the literature of the subject extremely limited, and the reports of cases very few. With the advent of antiseptic methods, however, the status of

this operation became entirely changed, and its safe and easy performance is not one of the least of the benefits which have come to surgery and humanity from the teachings of Sir Joseph Lister. The great danger—that of sepsis—can and should be avoided by the precautions which it has become the duty of every surgeon to undertake; nor is he deterred by this danger from undertaking complicated operations, involving much manipulation of the tendons and their sheaths. On the contrary, the results in these cases are so gratifying in respect to restoration of function that they now present a most attractive field for surgical work. In the year 1876 Küster, at the German Surgical Congress, called attention to the brilliant future which the Listerian treatment had opened for the operation of tenorrhaphy. His prophecy has proved true. In the light of modern results, it is almost malpractice not to unite by sutures the ends of severed tendons. The contrast with former surgical opinion is manifest.

In later years still, the method of treatment by aseptic blood clot, brought so prominently into notice by Schede, is believed by many to have greatly improved the prognosis as to completeness and rapidity of recovery in these cases. For the reason that the cases which have come under his observation have all been treated by careful hæmostasis, with or without drainage, the writer is able to contribute no direct clinical evidence upon this subject. A review of the arguments in its favor will, however, be presented, and it will be found that strong clinical evidence has been adduced in its favor.

Considering the frequency with which the suture of tendons is performed nowadays, it is surprising that so few results have been published. The reason for this may perhaps lie in the fact that the operation is most often performed in the accident rooms of hospitals and that the ultimate result may often not be judged for six months or a year. After their discharge from the hospital it often becomes a matter of difficulty to get patients of this class to return for observation, so that the final results are rarely entered on the hospital books. The cases to follow are all of the cases performed at the Massachusetts General Hospital within five years which the writer could induce to return for observation, although attempts were made to secure a much larger number. There have been published, however, three series of cases in which the final results have been reported, and the effect of the special circumstances of each case upon the result discussed in detail. These are, namely: 1. A series of thirty-four cases treated at the Hamburg General Hospital, reported by Wolter;* (2) fifty cases from Billroth's Clinic at Vienna, reported by Schüssler;† and a series of eight cases reported by Schreiber‡ in the *Münchener med. Wochenschrift* for 1890. It is hoped that the cases discussed in this paper may throw some light on the prognosis of these injuries, more especially in showing what good results can be attained

* Wolter. *Langenbeck's Archiv*, 37, 8, 157.† Schüssler. *Schnellnahme an der Klinik Billroth*, Wien, 1890.‡ Schreiber. *Münchener med. Woch.*, 1890, 8, 499.

when the unfavorable complications of fracture of the bones and crushing of the soft parts are present. Owing to the tough and unyielding nature of tendon tissue, it is rarely torn apart except by tearing or crushing injuries which lacerate the soft parts and often break the bones, so that the surgeon meets with about as large a number of such cases as of clean knife strokes.

Diagnosis.—The diagnosis of section of a tendon presents difficulty only in the case of small incised wounds which can not be made to gape so as to permit investigation of their deeper parts. In these cases the diagnosis must be made by careful examination for loss of function in the member or members of the tendons exposed by their anatomical position to injury. We must here take especial care to exclude the effect, first, of pain, in preventing the patient from voluntary effort to move the member, and, second, the effect of the support of one member by another. A patient, for instance, can easily extend the middle finger after section of its extensor tendon if the neighboring fingers are closed against its sides, while independent extension—i. e., with the fingers spread out—will be impossible. The anatomical conditions must be carefully weighed in each case. After section of the long extensor of a finger over the back of the hand, for instance, if the first phalanx is flexed, the terminal phalanges may be extended by the action of the interossei and lumbricales, which will in this case be inserted into the peripheral portion of the severed tendon. The above sources of error being excluded, loss of function in a tendon exposed to injury by its position means section of the tendon. When these sources—as that of pain, for instance—can not be excluded, the wound should be enlarged, and search made for the peripheral end, which can always be made to appear in the wound by hyperextension or flexion, as the case may be. The thorough disinfection of a wound ought often to involve its enlargement to a sufficient extent to enable the surgeon to examine as to the structures injured.

Prognosis.—The subjects of prognosis and treatment, and of prognosis as affected by treatment, form the most important part of our discussion. We are to try to answer the question, What advantage can we promise a patient in any given case will result in his undergoing an operation for suture of a tendon or tendons? The answer to this question has been first systematically and thoroughly made by Wolter in the paper alluded to above, and in the discussion of the effect of varying anatomical conditions the author will, in the main, accept his conclusions, some of which have been verified by abundant clinical experience, and some of which the writer has himself verified both by clinical observation and experiments on the cadaver.

To attain a good result in any given case, as Wolter has pointed out, we must secure two objects: 1. The restoration of the continuity of the tendon and of its normal length, either (a) by primary union of the severed ends, (b) union of the ends by a "callus" of connective tissue, or (c) union of the ends by adhesion of both to a cicatrix of skin or tendon sheath. 2. Preservation of the normal mobility of the tendon. Whether or not we are to attain

the above essentials in a given case will depend upon (1) the anatomical relations of the tendon at the point severed, and (2) upon the progress of the wound. To these we might add (3) the presence or absence of concurrent laceration of the soft parts or fracture of the bones.

We are to consider, then, first, the anatomical relations of tendons as affecting repair and subsequent mobility. Tendon tissue is tough and slightly vascular, deriving its blood supply chiefly from its sheath, which is abundantly supplied with blood-vessels. In repair of tendons, as of other tissues, a more abundant supply of blood is required than for growth or the repair of ordinary waste. The loose cellular tissue which forms the sheath of certain tendons—as, for instance, the extensors over the back of the hand—is much more abundantly supplied with blood than the dense semicartilaginous synovial sheaths which envelop the flexors of the fingers, for example. Therefore we would naturally expect firmer and more rapid repair in the former class of tendons than in the latter, and clinical observation and experience teach us that this is the case. Again, as tendons depend for their repair largely upon the supply of blood derived from their sheaths and other adjacent structures, these adjacent parts will be always found more or less adherent to the tendon cicatrix. Now, if these adhesions be to fixed parts, as to bones or the thecae of the flexors over the fingers, the motion of the part will be prevented unless these adhesions can be gradually broken up without rupturing the newly united tendon, whereas if they are to movable parts—as in the case of adhesion of the extensors over the back of the hand to the skin—the latter may move freely with the tendon without prejudice to function. In the latter case, even where the ends of the severed tendon can not be brought together, the skin cicatrix may be made to supply the gap without prejudice to the function.

Another factor indirectly affecting the prognosis will be the varying amount of retraction of the central ends. When the retraction is greater, the surgeon will have to resort, in searching for the ends, to means involving greater injury to the sheaths and surrounding soft parts, thus increasing the liability to the formation of adhesions. An extensor divided over the back of the hand, for instance, will only retract about two centimetres, further retraction being prevented by the fibrous bands which connect it with the skin and fascia, and will be found at the bottom of a funnel-shaped depression in the tissues. A flexor divided at the wrist, however, may retract three centimetres or more, and must be searched for in the depths of a long synovial canal. The effect of the anatomical conditions upon prognosis will be further considered when we take up the different classes of tendons in detail.

After the anatomical conditions, our next factor, and one of the greatest importance, is the progress of the wound. The manner in which the wound heals is of the greatest importance, as determining whether our result will be injuriously affected by the formation of extensive adhesions to surrounding parts. The healing of the wound depends upon three varying conditions:

1. The manner of its infliction.

2. The extent of concomitant injuries to surrounding parts.

3. The method of wound treatment adopted by the surgeon.

As to the first consideration, the prognosis will, of course, be better where the wound is made with a presumably clean than an undoubtedly septic instrument—with a planing tool than with a fish knife, for instance. In this regard, however, almost everything depends upon the thorough disinfection of the wound by the surgeon. The most unfavorable wounds can be made to heal *per primam* by thorough irrigation with corrosive sublimate (1-2,000 to 1-5,000), and all wounds in which free access to the depth can not be obtained should be enlarged for this purpose. In these cases irrigation is as important a means of treatment as in the somewhat similar class of compound fractures. As to the second condition, it is evident that the greater the concomitant laceration of tissues the greater will be the amount of exudation, and the larger the resulting mass of cicatricial tissue, and consequently the firmer the adhesions. Upon the same principle the methods of the surgeon in finding and securing the retracted ends should be those which entail the least bruising or tearing of the tendons themselves and of the parts with which they are in relation. This leads us to a consideration of the method of performing tendon suture.

Anæsthetics.—Cocaine and ether may be employed in these cases, and both have their supporters. For the majority of cases the employment of complete ether anæsthesia seems to the writer by far the safest course. Cocaine has been recommended as enabling the surgeon to employ voluntary motion on the part of the patient as a means of identifying severed tendons. This advantage, which is but slight when the surgeon possesses adequate anatomical knowledge, seems to me more than counterbalanced by an accident which he has seen more than once under cocaine anæsthesia—namely, that some sudden pain unintentionally inflicted by the surgeon causes a spasmodic contraction of the muscles of the limb, which tears out all the sutures and renders necessary the retracement of all the steps of the operation. This is both annoying to the surgeon and prejudicial to the result. Ether, on the other hand, if employed to complete anæsthesia, prevents such accidents by the relaxation of the muscles which it causes, and by rendering the patient totally insensible to the pain which might induce them to contract. This advantage is of especial importance in the case of sensitive, nervous patients. Another advantage of the greatest importance which ether anæsthesia gives the surgeon is the opportunity to employ the scrubbing brush in disinfecting the surrounding skin, a process which, without ether, causes often unendurable pain. After etherizing and disinfecting our wound by irrigation with corrosive sublimate, the next step is to find and secure the severed ends of the tendon.

Methods of finding the Severed Ends.—For this object we should always begin with the method which is the simplest and involves the least laceration of the delicate structures with which we are dealing. If these means fail, we may then resort to methods involving greater injury to

the tissues. In the first place, it is a waste of time to begin our search before hæmorrhage has been stopped by the application of a tourniquet. (In wounds of the forearm and hand the tourniquet should be applied above the elbow so as to avoid including the muscles with which we are concerned.) If after the hæmorrhage has been stopped the ends do not appear in the wound, we will probably be able to find the peripheral end by flexing the part to which it runs if it be a flexor, or extending it if we are searching for an extensor. The end may thus easily be made to appear in the wound. A similar manœuvre which is sometimes effectual in bringing the central end into view consists in applying the Esmarch bandage to the limb *from above downward*, so as to crowd the muscle downward and stretch it.

If the above methods, which are to be preferred as involving absolutely no handling of the wounded parts, are unsuccessful, we may next proceed to enlarge the wound transversely, so as to get a view of its depths. In this way we may often succeed without the employment of longitudinal incisions, which, however carefully made, complicate the wound and facilitate the formation of adhesions. If we are unsuccessful by this means owing to the depth to which the end has retracted, we may have recourse to longitudinal incisions, which are not to be made directly over our tendon, starting from the wound, but best in one of the two following methods:

The first method, which is to be chosen in the great majority of cases, is that brought prominently into notice by Oscar Witzel,* of Bonn. It consists in making our incision, starting from the original wound, not over the tendon, but parallel to and at a slight distance from it. The skin flap is then dissected up until we recognize the gleam of the tendon shining through its sheath, and the sheath then opened only as far as is necessary in order to reach the tendon. We can then suture the wound in the sheath with buried sutures, and when we have completed the operation and sewed up the skin, we have our skin wound at a distance from that of our tendon and sheath, and thus avoid, in large measure, the danger of adhesion between the two. If, on the contrary, the wound in the skin lies directly over the tendon, adhesions of the two cicatrices along the whole length often result—in fact, we get one common cicatrix for both. Where two tendons are cut, one incision parallel to and between the tendons will answer for both. This method is obviously to be chosen in all cases where we have to deal with tendons running in loose connective-tissue sheaths, as over the back or in the palm of the hand, and also where the tendons run close and parallel to each other in a general synovial canal, as do the flexors of the wrist.

Where, however, we have to search for a tendon lying in a single, narrow, definite synovial canal, as in the flexor of a finger opposite the phalanx, the method of Witzel should give place to one which involves the least possible wounding of the synovial sheath, or at least wounds the sheath at a distance from the point where the tendon is

* Witzel. *Sammlung klinischer Vorträge*, Leipzig, 1886, S. 291.

severed. Here we have to avoid adhesion to the stiff fibrous sheath, as greatly more dangerous to our prognosis than adhesion to the skin. The second method, which bears the name of Madelung, is as follows, and is designed to take the place of the blind process of fishing for the end of the tendon down the canal with forceps or hooks,* which should be deprecated as an unsurgical procedure and liable to lacerate the end of the tendon and wound its sheath:

A longitudinal incision one or two centimetres long is made over the tendon, beginning about two centimetres above the original wound. This distance will vary according to the distance to which it is estimated the end has retracted. Open the sheath at this point, seize the end of the tendon, draw it out through the new wound, and pass a strong suture through it. Tie the end of the suture to a probe, which is then passed in at the new wound and out at the original one. Then, by pulling upon the suture, draw the end of the tendon down to its original position, where it is to be sutured to the peripheral end. By this method we avoid unnecessary laceration of the end of the tendon, which is so prejudicial to primary union, and above all avoid a T-shaped wound in the sheath, which would be sure to result in the formation of strong adhesions. The method of Witzel was followed in all but one of the fifty cases reported by Schüssler from Billroth's clinic, in the one case Madelung's method being employed.

Such being the best methods for finding the ends, our next object is to secure them firmly in good apposition, so as to avoid the too common accident of a separation of the ends. Much will depend upon the choice of proper

Needles and Suture Materials.—Our main object throughout the operation being to cause as little bruising and laceration as possible, we must choose needles which will pass smoothly through the tendon, leaving a round, clean puncture. The common glovers' needles, with their three prominent angles, are to be discarded. It is best to employ either round needles or the saber-shaped needles of Hagedorn, which, when introduced flatwise to the tendon, separate its fibers so as to leave a barely perceptible slit. For suture materials, the surgeon has commonly at hand silk and catgut, either of which may be employed. With catgut it has seemed to the writer that there might be danger of a too early absorption depriving the tendons of their support before they had sufficiently united and allowing them to pull apart. Clinical experience, however, seems to show that catgut is a safe suture material. In Wolter's thirty-four cases catgut was employed, and no separation of ends is reported. The catgut was uniformly absorbed, never appearing in the wound. In Schüssler's series of fifty cases silk sutures were uniformly employed. In all but four of them the silk was absorbed; in four cases the silk sutures were extruded, without supuration, however, and apparently without prejudice to the results, which were good. In one of Schüssler's cases an extensor tendon pulled apart after an interval of five weeks, and in another, a flexor after seven; but it would seem that after these lengths of time had elapsed the accident would

be more likely to be due to too active employment of the newly healed tendon than to any fault of the suture material. A similar case is the one reported by the writer,* of suture of both flexors of the forefinger with silk, where too energetic passive motion caused the ends to pull apart after two weeks. In the cases reported in this paper equally good results have followed the use of both suture materials. On the whole, since catgut, if aseptic, never appears in the wound, it would seem to the writer preferable to silk; for the extrusion of silk must carry with it a *possibility* of infection, which does not exist in a perfectly healed wound. Silk, however, has the great advantage of being much more easily prepared for use, and its employment for tenorrhaphy can not be considered bad practice.

Methods of Suture.—It is a common experience, as has been noted in discussing anesthetics, for a suture, either from sudden contraction of a muscle or from too great tension brought upon it by the surgeon, to pull out of the end of the tendon and have to be replaced. The reason for its frequent occurrence is that the sutures which hold tendons must work at a disadvantage, having to pull in the direction of least resistance—namely, parallel to the fibers of the tendon. This accident can almost always be avoided if the sutures are placed so as to make tension not entirely parallel, but at a slight angle to the direction of the fibers, as is the case with the quilt and the "Billroth" suture, which are to be described. Sutures simply passed through the end of the tendon and tied will hold if enough of them be employed. The method recommended by Witzel depends upon these alone, and has given excellent results in practice. It consists in passing a single "tension suture" of coarse or medium catgut through both ends of the tendon at a distance from the point of section, drawing by this the ends together and tying it. The edges may then be accurately approximated by finer sutures of adjustment (Fig. 1).



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

A method which combines the advantages of being easy to execute and of bringing the tension of the suture against a greater resisting surface and in part transverse to the fibers, is a modification of the quilt suture described by Wölfler,† which will be easily understood by referring to the diagram, bearing in mind that at each interruption in the suture line the needle is passed clear through the

minutiv hooks have been invented for this particular purpose.

* Case XIV.

† Wölfler. *Wiener klinische Wochenschrift*, 1888, vol. i, S. 1.

tendon, and back again at the next, so that on section our suture will look like Fig. 3.

The method employed in Billroth's clinic consists in including a bundle of fibers from the side of the tendon in each suture, tying the suture around that bundle, including a similar bundle from the other end of the tendon, and tying that also. So that when tension is placed upon the suture, its direction, instead of being parallel to the tendon fibers, is almost at right angles. This method has been objected to as likely to cause strangulation and necrosis of the included fibers. In practice, however, it has given excellent results, and the above objection has not been found to obtain.

Where there is great danger of tension on the sutures, the method of Nicoladoni may be employed. This consists in fixing the central end of the tendon to the skin at some distance above the wound by an acupuncture needle or deep suture. The ends of the tendon are then united by ordinary sutures. The quilt and "Billroth" sutures are simpler than this, and are to be preferred in general. Operations for supplying a defect in a tendon, however, where we may find difficulty in suturing with the requisite strength, may be greatly facilitated by this method.

Wound Treatment.—Three methods are open to us.

1. Partial hæmostasis and suture of the wound without dependent drainage. (Moist blood-clot method.)
2. Thorough hæmostasis without drainage.
3. Thorough hæmostasis with drainage by gauze* or tube.

When the wound shows crushing or laceration of the soft parts, there can be no question but that drainage should be employed. In the case of clean incised wounds, however, our course is not so clear. Wolter in the paper above quoted has given an excellent argument for the employment of the moist blood-clot method, and supported it by excellent clinical results. His arguments in the main are the following: Repair in tendons takes place, as pointed out by Volkmann,* not by a reproduction of tendon tissue, but by the formation of a mass of connective tissue around and between the ends. The non-vascular tendon tissue contributes but little to the formation of this "callus," if so it may be called, the main part being played by the vascular sheath and surrounding tissues. From the abundant vessels of these tissues takes place the diapedesis of leucocytes, the throwing out of capillary loops—in short, the formation of granulation tissue. This granulation tissue becomes later the cicatricial tissue which holds the ends in apposition. This mass of cicatricial tissue necessarily limits the motion of the tendon at first, but later almost disappears, with exercise of the part, except the thin layer between and just around the ends, which comes strongly to resemble true tendon tissue. On this basis Wolter accounts for the well-known fact that those tendons which run in sheaths of loose connective tissue heal more rapidly and firmly than those which lie in firm, dense synovial canals, as the flexors of the fingers. In the latter case the blood extravasation will be too slight, and the

formation of granulation tissue insufficient; the granulations, feeble in themselves, will not find blood clot enough to feed upon. On this ground he argues that complete and careful hæmostasis is prejudicial to the most complete and rapid repair. We should encourage rather than seek to prevent the formation of a blood clot in the wound. To avoid too great tension we may have at its upper portion small openings for the escape of superfluous blood, not at the lower portion, as for drainage. The line of the wound may then be covered with a strip of protective narrow enough to let the blood run out under its edges into the absorbent dressing. *The first dressing may remain from three to four weeks.* By this method Wolter has secured recovery of function in a remarkably short space of time.

The advantages of treatment without drainage are obvious, since nothing contributes in so high a degree to repair as perfect rest. This we can not have if we are constantly changing the dressing, as to change a drainage-tube, etc. Whether we are to attempt to have a blood clot form in our wound which shall be just large enough to nourish our granulations, and not large enough to cause tension, is another question. Wolter advises tying only the larger blood-vessels. It would seem to the writer that unless very firm pressure be applied this would allow the formation of too large a clot. The cases which are reported in this paper as sewed up without drainage—ten in number—have done uniformly well (except in two cases of infection and suppuration), so that as far as his observation goes the writer would urge a thorough hæmostasis, and suture without drainage.

With regard to the position in which the member should be dressed, it should manifestly be one which relaxes the tendon or tendons involved—i. e., of flexion for suture of flexors, and *vice versa*. It has been pointed out by Schüssler, and is a point worth noting, that if the hand is too completely flexed or extended under the dressing, we may interfere with the circulation in the wound or cause it to gape. In Case II of this paper it seemed to the writer that the forcible extension of the hand over a roller bandage interfered with the venous return of the back of the hand, and that the pressure of this roller directly over the wound caused the sloughing area through which it became infected.

After-treatment should be very judiciously and cautiously conducted. Passive motion should be begun as soon as possible, in order to free the tendon from the adhesions it has formed, but not before the cicatrix of the tendon has grown firm enough to stand the strain. It must be begun very gently, and the range of the manipulations and their force very gradually increased. We recall in this connection the rupture of the cicatrix of an extensor after four weeks, and of a flexor after seven, in Billroth's clinic; also the writer's case,* in which the cicatrix gave way in the third week, owing to too violent manipulation.

In general, it is unsafe to begin passive motion in the case of extensor tendons before the beginning of the third week, and in flexors before the fourth. According to Wol-

* Pitha and Billroth, ii, 910 ff.

* Case XIV.

ter, where the moist blood-clot method is pursued, these motions can be very rapidly increased and varied, for he reports cases of complete recovery of function in three to four weeks. In most cases, however, it will be better to wait six to eight weeks before carrying our motions to the full range.

When the operation is complicated by the fracture of bones, in the callus of which there is danger of the tendon becoming involved, passive motion must be carried out with especial care. That good results as to freedom of motion may be obtained even in these cases is shown by Cases V and VI of this paper.

In all these cases we should remember that it is not rare for improvement to be very gradual—say, six months or a year before complete recovery of function. Therefore the prognosis should not be necessarily bad if immediate recovery of function does not take place, but persistent treatment may attain good results even after a year or more.

(To be concluded.)

APPENDICITIS IN CHILDREN.*

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I HAVE selected the subject of Appendicitis in Children as my contribution before this Section for the following reasons: First, because the disease is one which occurs frequently in early life and, from some similarity of symptoms, is likely to be confused with and mistaken for some one of the various intestinal disturbances peculiar to children; second, because the gravity of the disease is such that upon its early recognition depend in a great degree the chances of recovery; third, because I desire to advocate the removal of the appendix in acute primary attacks as soon as the disease is recognized, where there has been no decided response to judicious medical treatment, and between attacks in all recurrent cases.

In a paper read before the last meeting of the American Surgical Association I maintained that all inflammations located in the right iliac fossa had their origin in the appendix, such a conclusion being the inevitable result of observations at both the operating and post-mortem table. I also proposed that the terms typhilitis, perityphlitis, and paratyphlitis should be expunged from the medical vocabulary as being misleading in their character and as presenting a classification which is anatomically unfounded and which clinically is incapable of demonstration.

I would therefore group under the term appendicitis all inflammatory conditions of the right iliac fossa, believing that in so doing a clearer conception will be formed of the true pathological conditions present, and that a common treatment—that of early operative interference—will be adopted universally.

All cases of appendicitis may be classified under the

following heads: Catarrhal, ulcerative, which may be the result of a circumscribed catarrhal inflammation or of an obstruction due to the presence of a foreign body, as a fecal concretion, an enterolith, a stricture, etc.; perforative, an advanced stage of the ulcerative type; tubercular; and relapsing or recurrent.

Pathological Changes.—The pathological changes occurring in cases of appendicitis vary according to the exciting cause, but are usually those common to inflammations of the intestinal tract and may present any of the conditions from a simple lymph exudate to a pus formation.

Ætiology.—Inflammation of the appendix may be the result of either predisposing or exciting causes. Among the predisposing causes age is an important factor, fifteen per cent. of all cases occurring under fifteen years. The youngest patient I have met with was a child two years old. Males are more prone to the disease than females are. A tubercular diathesis is not uncommonly the remote cause of a suppurative appendicitis. Chronic constipation is a further predisposing cause, which may induce either a catarrhal or an ulcerative type. Among the exciting causes may be mentioned the presence of seeds, enteroliths, fecal concretions, inspissated mucus, particles of undigested food, traumatism, and exposure to cold or dampness, but the most frequent exciting cause is the result of a previous attack.

History and Symptoms.—The onset is usually sudden, constipation the rule rather than the exception. We may be able to elicit a history of one or more previous attacks or of the rapid ingestion of some indigestible substance or overloading of the stomach.

The symptoms of appendicitis in its incipency are not by any means definite in all cases. The prominent and constant symptoms are pain, vomiting, and tenderness. The pain, which is at first paroxysmal, in this respect resembling colic, is referred to the umbilical and epigastric regions, and in seventy-two per cent. of all cases appears within twenty-four hours. Later it becomes continuous, and is localized in the right iliac fossa in fifty-four per cent. of all cases. Vomiting is present from the first, becoming uncontrollable if the case does not yield to treatment. The vomited matter consists first of the contents of the stomach, later of bile, and finally, if a plastic peritonitis supervenes by which the coils of intestine are immobilized from the resultant deposit of lymph, of stercoraceous matter in those cases in which the intestinal tract has not been emptied. Ordinarily the vomiting of stercoraceous matter is indicative of acute intestinal obstruction, yet we see stercoraceous vomiting in advanced and hopeless cases of appendicitis. The tongue is furred and later in the disease becomes dry with the deposit of sordes upon the teeth. There is extreme thirst, with a temperature varying from 102° to 104° F. and a high pulse rate. The bowels are usually confined; it is, however, not uncommon to have the disease ushered in with diarrhœa. The presence of sick stomach, diarrhœa, and pain coming on suddenly are suggestive of enteritis, the affection with which acute appendicitis in its incipency is most likely to

* Read before the Section in Diseases of Children of the Pan-American Medical Congress at its first meeting.

be confounded. As the affection advances, the child frequently favors the affected side and lies with the thigh of the corresponding side flexed upon the abdomen. Frequency of urination is often a prominent symptom, being due evidently to the involvement of the sympathetic nerves. Examination by palpation reveals general tenderness over the affected area, while the point of greatest intensity usually corresponds to the so-called McBurney point, providing the appendix occupies its most common position, arising from the postero-internal aspect of the base of the cæcum. I recall one case in particular where the greatest point of tenderness was immediately above the middle of Poupert's ligament. This, as demonstrated at the operation, corresponded to the angle of curve in the appendix, which arose from the postero-external aspect of the base of the cæcum and descended in front of the latter as far as its apex, where it curved abruptly upward. When general peritonitis is present early, as in the perforative variety of the disease, notwithstanding that there is a very general abdominal tenderness, yet, upon deep pressure, a point in the right iliac fossa corresponding to the appendix can be made out which is much more painful than any other point in the abdomen. Palpation also detects very decided resistance offered by the abdominal muscles of the affected side. In many cases an indurated mass is to be felt, which is circumscribed or diffused, particularly in the direction of the linea alba and of the pelvis. Superficial percussion in the early part of the disease yields negative information, while deep percussion, if the case steadily advances, will reveal dullness and later flatness. Deep rectal as well as vaginal examination I do not think of much diagnostic value, early in the disease at least. In those cases where the appendix projects into the pelvis it may be of some assistance. If a mass can be felt through the rectum or the vagina, palpation of the abdominal walls at the same time may elicit fluctuation. Suppuration is not always readily detected, as fluctuation is difficult to elicit on account of the unyielding abdominal wall. Yet I have seen it well pronounced many times. Œdema of the overlying abdominal walls is of great diagnostic value as indicating the presence of deep suppuration. If, associated with the presence of a mass in the right iliac fossa, there are decided chills, or even chilly sensations with sweating, it is quite evident that pus is present.

Diagnosis.—The establishment of a diagnosis depends on the character of the symptoms, the clearness of the history, the duration of the disease, and the previous treatment, as the administration of opiates to relieve distressing pain may mask many symptoms which would otherwise be prominent. The affections with which appendicitis is most likely to be confounded in children are enteritis, involving all the coats of the intestine (entero-peritonitis); acute mechanical intestinal obstruction; perinephritic abscess; abscess of the kidney, and especially so if the kidney be a floating one, as I have once observed; psoas abscess; iliac abscess; abscess of the abdominal parietes; hip disease; hepatic and renal colic. In enteritis involving all the coats of the intestine the disease is ushered in by a diarrhœa of a more or less severe type, in which the

stools are watery and mucoid in character. This is accompanied by pain of a colicky nature referred to that portion of the abdomen corresponding to the situation of the affected coils of intestine, also by the absence of abdominal distention. Later, however, when the muscular and serous coats are invaded by the inflammatory process, as a consequence of the infiltration and the involvement of the sympathetic nerve filaments supplying the coats of the bowel, paralysis of the bowel occurs which results in distention. Diarrhœa is now no longer present, but, on the contrary, absolute constipation with inability to pass flatus. Vomiting occurs which, if the disease is not relieved, becomes stercoraceous. Ordinarily there would be but little trouble in differentiating between this form of enteritis or entero-peritonitis and appendicitis if the symptomatology of the latter affection is borne in mind, in addition to what has been said about the physical signs elicited by careful abdominal palpation in cases of appendicitis.

In acute mechanical intestinal obstruction the two most common forms met with in children are invagination and strangulation by bands; the onset of the symptoms is more abrupt and severe than in appendicitis. In invagination, as in strangulation by bands, the pain, which is most intense and at first occurs in exacerbations, is referred to the seat of the obstruction, or more commonly to the umbilicus, and not concentrated in the right iliac fossa, as is the case in appendicitis when the disease is well established. There is absolute constipation with inability to pass flatus. Vomiting is an early symptom in both forms of obstruction, which, if not relieved, becomes stercoraceous. When peritonitis supervenes there is very little effort attending the vomiting. Properly speaking, the patient at this stage of the disease regurgitates fecal matter caused by the reversed peristalsis. There is absence of fever in strangulation by bands and in invagination unless the child survives until the invaginated portion of the bowel commences to undergo inflammation, which causes ulceration and affords Nature a means of disposing of the intussusceptum and thus establishing a spontaneous cure. In invagination the presence of a movable tumor, the most common site of which is to the left of the middle line, but not always to be made out on account of the distention, while in appendicitis a tumor, if present, is fixed and always occupies the right iliac fossa, are important differential points. In invagination a discharge of blood and mucus from the rectum, and in many instances the presence of a tumor, may be detected upon making a digital examination of the rectum. With the development of peritonitis in acute intestinal obstruction there is marked distention of the abdomen.

Collapse is an early symptom in acute intestinal obstruction, while not so in appendicitis unless it be of the perforative or fulminant variety; but even then it is a later manifestation than in obstruction. In perinephritic abscess the location of the swelling, the presence of œdema in the loin, and the absence of bowel symptoms, are important differential factors. In many cases of perinephritic abscess the trouble is preceded or accompanied by the presence of pus as well as other abnormalities in the urine.

This is not, however, true in those cases which have

their origin independent of the kidney, as when due to constipation, traumatism, etc. In perinephritic abscess, as in some cases of appendicitis, owing to the relation between the perinephritic tissue, the appendix, and the psoas magnus muscle, flexion of the thigh upon the abdomen is a symptom common to both affections. If a doubtful case should arise where it would seem to be impossible to differentiate, better than introducing an exploring needle or an aspirating needle, either of which procedures under these circumstances I regard as most unsurgical and attended by no little danger, I would advise an exploratory incision in the loin before cutting through the abdominal wall anteriorly; this could not possibly result in any harm, even if the perinephritic space be found intact; nor would it interfere in the least with immediately cutting down upon the appendix. In abscess of the kidney the same train of symptoms is largely present as in perinephritic abscess—namely, a mass in the loin corresponding to the position of the kidney, pus in the urine, history of renal colic, with perhaps the passage of small crystals of uric acid; yet to have renal colic it is not necessary that a stone or a fragment thereof should pass through the ureter, but simply a plug of fibrin or inspissated mucus, as I have seen upon several occasions in cases of pyelitis. In kidney abscess, nausea, with sometimes vomiting, is a not inconstant symptom. In the absence of urinary symptoms, abscess of the kidney, and particularly if it be one of a floating kidney, the differential diagnosis is necessarily more difficult. In the latter instance, however, the tumor will be movable—a point to be borne in mind. I have recently operated in the case of an acute suppuration of the kidney where the urine was normal and where the diagnosis was made purely upon the anatomical situation of the swelling.

In psoas abscess the onset is slow, with little or no fever, usually, though not always, accompanied by evidence of disease of the vertebrae, absence of pain, tenderness, and bowel symptoms.

There may be flexion of the thigh of the corresponding side due to the muscular irritation. What has been said of psoas is equally true of iliac abscess, if dependent upon bone disease. Should a collection of pus in the iliac fossa be dependent upon disease of the uterine appendages, a vaginal examination would reveal the cause. In the latter variety of abscess, however, the swelling usually holds a lower position than abscess the result of disease of the appendix, it being near Poupart's ligament—in fact, immediately above it.

Abscess of the Abdominal Wall.—Between abscess of the abdominal wall and that caused by appendicitis there should be but little difficulty in arriving at a correct conclusion. If the collection is in the superficial fascia it will be circumscribed, while if between the abdominal muscles it is likely to be diffused. The purely local character of the abdominal abscess, the swelling moving with the abdominal walls, the absence of intestinal symptoms, the presence of local and constitutional evidence of pus, coupled with the history of the case, should be enough to render a differential diagnosis possible.

Hip-joint Disease.—The presence of the characteristic

deformity, inability to execute the normal movements of the joint, pain referred to the knee, arching of the lumbar spine when the limb is brought into the fully extended position, absence of intestinal symptoms. If there is still doubt, the administration of an anæsthetic will suffice to dispel it.

Hepatic Colic.—In hepatic colic the painful area is usually higher in the abdomen, radiating toward the shoulder, most severe over the region of the gall bladder, and usually followed by jaundice.

Nephritic Colic.—In nephritic colic a history of previous attacks may often be obtained; the origin of the pain is deep in the upper loin, radiating in the line of the ureter, with retraction of the testicle, diminished urinary flow, with blood or pus, and a sudden termination of the attack. Retraction of the testicle may occur in appendicitis, due to irritation of the genito-crural nerve.

I recall a case of a physician in which the diagnosis of renal colic had been made, and in which the ureter was supposed to have been ruptured by the passage of a calculus. The autopsy revealed a gangrenous and perforated appendix with diffuse suppurative peritonitis.

Prognosis.—The age of the patient has a material effect upon the prognosis; the earlier in life it occurs, the less resisting power is exhibited by the patient. Sex does not seem to be a factor.

Where an abscess forms and ruptures or perforation takes place, and the contents of the bowel escape and are unconfined by a wall of lymph, general peritonitis is rapidly established, terminating these cases with a fatal uniformity. The most favorable point for spontaneous evacuation of the contents of an appendicular abscess is into the cæcum. Rupture into the rectum is also followed by recovery in the majority of cases. Rupture into the bladder is fatal in about fifty per cent. of the cases. The most favorable results have been recorded where early operative interference was instituted, the mortality under this plan of treatment being but six per cent.

Treatment.—Medical treatment: The first indication to be fulfilled in a case of appendicitis, or even of a supposed case, is to obtain a free action of the bowels. This is best accomplished by the administration of small and repeated doses of salines—preferably Rochelle salts—or, if the stomach is not tolerant to salines, small doses of calomel. The free evacuation of the bowels, not drastic purgation, serves the purpose of clearing the alimentary canal of all foreign and irritable substances—as particles of undigested food, etc.; relieves the congested blood-vessels, thus modifying the degree of the subsequent inflammation; and again fulfills a most important indication in having the bowels in the most favorable condition for operation in the event of its necessity. I can not emphasize this important part of the treatment too strongly, as upon it, I believe, largely depend the chances of the patient's recovery. Certainly, in my experience, the bulk of the cases I have seen recover without operation have been those where it was most thoroughly carried out, and in the cases operated upon the largest percentage of recoveries have been in those where the bowels were not allowed to be confined. Where there

is great pain, as we frequently see, in addition to the administration of salines or calomel, as the case may be, we may be forced to use an anodyne, and, if so, it should be given in the smallest possible dose.

The pain in appendicitis, which is colicky in nature, is due first to the muscular contraction of the appendix and the bowels, and in the majority of instances is provoked by irritation within both; therefore is not the evacuation of the intestines of their irritating contents urgently called for? Are they not, in other words, asking to be relieved? This being so, will not purgation take the place of an anodyne, as a hypodermic of morphine, which is so often and indiscreetly given? In other words, the best anodyne is the repeated dose of salts or calomel, which does more than any preparation of opium can do, both relieving and removing the cause of the pain. Recognizing the character of the pain, is it not possible to afford relief by hot applications to the abdomen in the shape of the hot-water bag, hot cloths, hot turpentine stupes, etc.? Internally, before giving opium, I prefer to use spirits of chloroform, carminatives, or extract of belladonna. If now relief is not obtained, then I administer a small dose of opium, and preferably by suppository, as I think we all agree that opium given in this form is less liable to cause sick stomach. Sick stomach is so frequently provoked by morphine given hypodermically that it is often difficult to say whether the nausea or vomiting is due to the morphine or to the disease. Further, there is no disputing the fact that opium or any of its preparations brings about a paretic condition of the bowel and thus favors distention, an obstacle difficult to contend with when endeavoring to elicit a mass.

If the case be catarrhal, the presence of congestion of the mucous lining of the appendix is the exciting factor in occasioning contraction of the muscular coat, which is the direct cause of the initiatory pain. Again, as has already been noted, emptying the bowels freely both removes an additional factor in exciting contraction of the muscular coat of the appendix, as well as depletes the circulation and renders the canal more patulous and better able to free itself of mucus, which, if retained, becomes inspissated.

The presence of inspissated mucous in catarrhal appendicitis is liable to lead to an ulcerative type of the disease. While I do not believe the good derived from purgation in the obstructive form of appendicitis is equal to that in the catarrhal type, yet I do not know of any other form of medication capable of accomplishing the same amount of good. There is some hope, too, in emptying the caecum that the orifice of the appendix may be rendered patulous and the expulsion of the foreign body facilitated. In the perforative and explosive or fulminant varieties of the disease, the latter being only a difference in degree of the former, active purgation would be ill advised on account of the fear of hastening and making greater the extravasation of fecal matter. The treatment by free evacuation of the bowels may be thought to be erroneous on account of the increased peristalsis resulting therefrom aggravating the already existing inflammation. The use of leeches and blisters is advocated by many in preference to purgation to accomplish depletion of the circulation. I must confess

this is not in accord with my experience. Blisters, I think, are particularly objectionable on account of the infiltration of the skin they occasion, which both interferes with palpation and the recognition of pus by the oedema of the abdominal walls.

The question of diet throughout the disease is important, and it should consist—until the patient is convalescing at least—of peptonized milk, koumyss, milk and Apollinaris or carbonated lithia water, liquid beef peptonoids, and concentrated beef tea, the latter being all the more indicated on account of its laxative effect. Buttermilk I find very grateful to many patients.

As to the propriety of the removal of the appendix in cases of recurrent appendicitis, there is, in my mind, no doubt. While I am willing to admit that my experience has taught me that acute attacks of recurrent appendicitis are less fatal than primary appendicitis, yet I can not see how this argues against removal of the appendix between attacks, the period for elective operation. I am unable to understand the philosophy of the argument that because a patient has survived a number of attacks of recurrent appendicitis, the appendix should not be taken out, since each recurring attack may possess elements of danger unknown to us which may deprive our patient of his life. Those of us who have observed these cases carefully know that many are the subjects of chronic invalidism. The percentage of mortality in operations for recurrent appendicitis in skilled hands is less than one per cent. The absence of inflammatory conditions so simplifies the operation that its after-conduct entitles it to be classed as a simple wound. This same absence of acute inflammatory condition which relieves the necessity for drainage and the consequent impairment of the integrity of the abdominal walls lessens in a great degree the liability to ventral hernia.

The after-treatment of these cases is so simple that it deserves special mention. It consists during the first three days of alimentation alone, absolutely no opiate, and at the expiration of this time, if the bowels have not moved voluntarily, of the administration of one-tenth-grain doses of calomel every hour or two until a desire to defecate is produced, when an enema is given.

Before discussing the operative treatment of this disease and while advocating the most radical methods, I desire to disclaim any intention of declaring that all cases where the ordinary medical treatment of the general practitioner has failed to afford relief are cases for immediate operation, as I believe that such a decision should rest only with an experienced surgeon, who may have carefully observed the progress of the case. Further, that the operation should be done by one who is thoroughly prepared to dispose of any of the unlooked-for conditions which are likely to be met with in any case. The skill required for the rapid and thorough performance of appendicial operations must be of the highest order, as time lost and prolonged etherization (by which the patient becomes, as it were, water-logged) during an operation may be just sufficient to turn to a fatal termination what would otherwise have been a successful result. This is of special importance when operating upon children, as we well know they do not bear pro-

longed etherization or operation. In the gravest types of the disease, when there is a sudden abatement of the symptoms, the attending medical man or surgeon, as may be, must not congratulate himself upon the rapid recovery of his patient and overlook the fact that this is a forerunner of perforation. On the contrary, if operation has not already been entertained, the strongest indication for its immediate performance now presents itself. Following this period (which is practically one of shock), in the course of a few hours—usually twenty-four—a general peritonitis has developed and the golden opportunity for offering the patient his only chance for relief is a thing of the past.

The technique of the operation for appendicitis where abscess exists varies by reason of the different local conditions found. When the abscess is circumscribed and shut off, after the pus has been evacuated and the cavity irrigated, if the appendix can not readily be found, it is not judicious to make a prolonged search for it, by which the limiting wall may be broken through and a communication with the general peritonæum established. In this class of cases, however, I have been fortunate enough in most cases to find the appendix and remove it without breaking through the abscess wall. This is always more satisfactory to the surgeon than to complete the operation by simply draining or packing the abscess cavity, and it removes what may be the cause of one or more attacks of the relapsing variety of the disease. When the abscess is in communication with the general peritoneal cavity a more prolonged search for the appendix may be made with less risk than in the preceding state, but the patient's general condition is usually so bad under these circumstances as to make it unwise to keep him under the effect of the anæsthetic any longer than is absolutely necessary.

The points I observe in making the incision for the removal of the appendix in acute cases where there is present a mass, be it pus or exudate, are the following: When the loin is rendered prominent by the mass or is the seat of œdema, I take it as an indication that the appendix holds a post-cæcal or an external antero-lateral position, or that it comes off from the apex of the cæcum, and I carry the incision parallel with and a short distance above the outer third of Poupart's ligament, prolonging it outward if necessary. When the mass presents itself well to the inner side of the anterior superior spine of the ilium, I carry the incision through the semilunar line—rather, through the rectus muscle immediately to the inner side of the semilunar line. The wound when carried through the muscle heals more solidly, and therefore there is less likelihood of the development of a ventral hernia than when made through the semilunar line.

In acute cases the treatment of the stump of the appendix will depend on its situation and the mobility of the cæcum; if the latter has become fixed through plastic adhesions, and it is not deemed advisable to make the manipulation necessary to bring it well up into the wound, the appendix is tied off *in situ*.

If, however, it is possible to present the appendix in a favorable situation, a circular incision is made through the serous coat half an inch from the cæcum, and the serous coat

then stripped back for the space of a quarter of an inch; the appendix is then tied off with fine silk, the serous covering replaced with edges inverted, and brought together with a Lembert suture. The latter disposition of the appendix is decidedly the most favorable, and is the method which we are enabled to employ in cases of recurrent appendicitis, with few exceptions. In cases of abscess of the pus cavity, when limited, is thoroughly irrigated and drained with either tubes or iodoform gauze, or both combined. When the peritoneal cavity has become generally involved, irrigation and drainage are employed in the usual way.

After-treatment.—The after-treatment in acute cases consists in the administration of small doses of salines repeated sufficiently often to free the bowels, with the same diet as before mentioned, alimentation being allowed immediately on cessation of other emesis.

120 SOUTH EIGHTEENTH STREET.

THE MEDICAL ASPECT OF DISEASED TEETH.

By A. HUGH HIPPLE, L. D. S., D. D. S.,

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THE development of what is known as the germ theory of disease has of late years directed the attention of physicians to the mouth as the point of infection to which the origin of many diseases might be traced, and has also called attention to the constitutional effects liable to arise from diseased teeth whose cavities are filled with pathogenic germs and whose roots are bathed in pus. The fact that dental caries is the most universal of all the diseases to which mankind is subject, and the painful nature of the complications which frequently arise from it, have caused it to receive some attention from medical writers; but, as a rule, dental lesions are regarded as trivial, the prognosis being exceedingly good so far as life is concerned, and as the loss of a tooth is too often looked upon as a matter of slight consequence, physicians rarely concern themselves very much about the teeth of their patients. The investigations of Dr. Miller, of Berlin, however, and of others, have shown that serious constitutional effects may arise and frequently do arise from diseased dental organs, and that death occasionally results from the absorption into the system of infectious matter collected about the root of a tooth. Ten cases of death from this cause were reported to Dr. Miller as having occurred in the Hamburg General Hospital, and from various sources he obtained the history of twenty-seven other cases that terminated fatally. In a number of other instances chronic pyæmia, the cause of which was obscure and which would not yield to ordinary treatment, disappeared at once upon the removal of a diseased tooth. The importance of diseases of the teeth from a medical standpoint being thus established, the writer, without discussing the local disturbances that commonly arise from dental lesions, desires to call attention to those more serious affections which result either from micro-organisms traceable to diseased teeth or from nervous irritation induced by the teeth.

A tooth in which caries penetrating the pulp cavity has caused the death of the pulp, its suppuration and the formation of an alveolar abscess can not but be regarded by the thoughtful physician as a menace to the general health and even to the life of a patient. "An examination of the skull will show a number of channels through which an inflammatory process in either jaw might reach the brain. The roots of the upper molars frequently pierce the floor of the antrum, from which the inflammatory process might extend to the nasal cavity, and through the cribriform plate of the ethmoid to the brain. If the inflammation extended to the back part of the mouth it might obtain entrance by way of the pterygoid fossa and the foramina at the base of the skull or by way of the inferior sphenoidal fissure and orbit. In the case of inflammatory processes in the lower jaw extending upward along the ramus, entrance to the cavity of the skull might be obtained either by way of the pterygoid fossa or the orbit. A case was reported in the *Dental Record* of July, 1888, of an abscess in the lower jaw of a boy seven years of age caused by carious molars, in which the inflammatory process extended to the orbit and finally resulted in abscess of the brain and death. In another case reported in the *Edinburgh Medical Journal* some years ago the inflammation first made its appearance at the roots of the upper teeth, from which it spread to the antrum. The ethmoid bone was next attacked and became carious, the inflammatory process finally reaching the brain, causing encephalitis and death.

Reference has been made to the cases mentioned by Dr. Miller, where a general infection of the blood from pus collected about the root of a tooth resulted fatally. Much more common, however, and more difficult to diagnose, are those cases of chronic pyæmia in which metastatic abscesses form in such parts of the body as possess, for the time at least, the least powers of resistance. That these may result from a diseased tooth is beyond a doubt, the virus from the seat of infection being carried to points more or less remote by the blood or lymph.

Empyema of the antrum of Highmore is a disease of frequent occurrence, and is the direct result of dental lesions in a very large proportion of cases. The roots of several teeth being separated from the cavity of the antrum by only a thin layer of bone, and in some cases actually penetrating it, the danger of an inflammatory process about the roots of teeth extending into it or of an alveolar abscess breaking through its floor is necessarily very great. Pus having collected within the cavity, its form is such that it can not be perfectly emptied without surgical interference, the opening into the nose being so high above the floor that more or less matter always remains. This naturally acts as an irritant, until finally the entire lining membrane becomes involved, resulting in a disease that is always loathsome, usually painful, and sometimes dangerous.

A serious inflammatory process, causing abscess and trismus, is often the result of an impacted wisdom tooth. There is some ground for believing that with the contraction of the jaws wisdom teeth are gradually disappearing from the mouths of civilized races, but in the vast majority

of cases these organs still persist, and in attempting to erupt into an already crowded dental arch frequently bring about a chronic state of irritation. Upon examining the mouth in these cases the third molar of the lower jaw is found crowded into the ramus, while the corresponding upper tooth occupies the extreme rear of the maxillary tuberosity. Some of the micro-organisms that are always present in the mouth, and that never seem to cause any trouble so long as the tissues are in a perfectly healthy condition, soon find their way into the space between the crown of the partially erupted tooth and the gum covering it, and following the roots into the jaw, where the resistance of the tissue is diminished as the result of long-continued irritation, bring about a series of disturbances that occasionally end in necrosis, or even death from septicæmia. These cases are of particular interest to the physician, as the lesion is liable to be referred to some other cause, the presence of a wisdom tooth being often unknown to the patient, and the swelling and trismus making examination of the mouth almost impossible.

Just what effect upon the stomach is produced by the constant swallowing of bacteria and pus from diseased teeth, mingled with decomposing particles of food, we are unable to determine, but it is reasonable to suppose that gastric disturbances are greatly aggravated if not induced by so doing. In every community there are those who are enthusiasts on the subject of pure air and wholesome food, but whose mouths are in such a neglected condition that the air which passes through them is almost as polluted as that of a crowded tenement, and every mouthful of food swallowed carries with it into the stomach millions of bacteria. The almost entire futility of sterilizing articles of diet for patients in whose mouth chronic abscesses exist, or whose teeth are covered with tartar mixed with mucus and food in a state of decomposition, need hardly be mentioned.

Of the more uncommon infectious diseases which have been traced to the action of mouth bacteria, and in the introduction of which into the system diseased teeth have been found to play a part, actinomycosis is one of the most interesting. This disease, which is widespread among cattle, was first described in man by James Israel, and is caused by a ray fungus that usually enters the body through the mouth. It gives rise to a small granulation tumor, followed by extensive proliferation of the adjacent connective tissue, forming a growth which, in the jaw, is easily mistaken for osteosarcoma. The lungs are frequently affected, and Osler says that thirty-four such cases have been reported since 1878, all but two of which proved fatal. A very interesting case, observed by Israel and described by Dr. Miller in the *Dental Cosmos* of February, 1891, was that of a driver, aged twenty-six, who was in the habit of sleeping in his barn, and frequently drank out of the same trough with his horse. The left side of the man's breast was covered with abscesses and ulcers, but the primary seat of infection was not discovered until after his death. The autopsy revealed an actinomycotic cavern in the anterior portion of the superior lobe of the left lung, in which was an irregular calcareous body about the size of a No. 6 shot.

This was sent to Dr. Miller for microscopic examination and proved to be a small fragment of dentine surrounded by phosphate and carbonate of lime, incorporated with which were numerous threads of the ray fungus. There seemed to be no doubt that the fragment was the carrier of the infection.

A very interesting field for investigation, and one that has as yet been imperfectly explored, is the influence of the teeth in inducing reflex nervous disorders in other parts of the body. The anatomical relations of the teeth are well known and their nervous connections have been carefully figured out, but while our knowledge in these directions may show us how reflex disturbances of the eye, ear, and other organs are possible as the result of dental lesions, many of these phenomena must, with our present knowledge of the subject, be regarded as mysterious.

That there is an intimate relation between ocular disorders and pathological conditions of the teeth is shown conclusively by Dr. Brubaker in the *American System of Dentistry*. He prefaces his remarks, however, with the statement that at the time of writing ophthalmologists were hardly prepared to admit that such disorders could result from dental irritation, Graefe and Saemisch merely alluding to such a relation, and Stelwag and Wells omitting its mention entirely. He adduces a large number of cases in support of his position that reflex ocular disturbances are frequently induced by the teeth, some of which are quite startling. One of the most remarkable was a case of amaurosis extending over a period of twelve years, which was cured within a few days by the extraction of a tooth. In a paper read before the New York Odontological Society in 1891, Dr. Stevens referred to the recent utterances of Galezowski upon this subject. This distinguished oculist says that many rebellious cases of corneal disease arise from reflex irritation induced by difficult first dentition; that neuralgic affections about the eyes are often due to the second dentition; and that the appearance of the wisdom teeth is frequently associated with other ocular disturbances. Dental caries, he believes, is responsible for many cases of accommodative asthenopia, and he relates a case of blindness of one eye, where no lesion could be detected with the ophthalmoscope, which he attributed to the extraction of a tooth. Tomes says that "many well-authenticated cases have been recorded in which not only functional but organic diseases of the eye have been distinctly traced to the presence of diseased teeth," and mentions the case of an adult who had strabismus for three years, and ptosis for a portion of that time, both of which were completely cured by the extraction of decayed teeth.

Oral irritation appears to be much less frequently referred to the ear than to the eye, although in some cases aural derangements undoubtedly owe their origin or continuance to diseased teeth. Magitot says that partial or total deafness is sometimes the result of dental caries, and Vautier tells of a case of deafness that resulted from a diseased wisdom tooth. Robert Barclay has reported twenty cases of various aural derangements which were not benefited until thorough dental treatment had been instituted. He believes that as the result of oral irritation reflected to

the ear a change is produced in the caliber of the blood-vessels, through vaso-motor influence, which is followed by hyperemia, increased glandular activity, and congestion of the integument of the canal and mucous membrane of the tympanum. In a lecture to the students of Guy's Hospital, some years ago, Dr. Hilton gave a detailed statement of the case of a professional friend, Dr. Addison, bearing upon this point. The patient had suffered for some time from a very offensive discharge from the auditory canal of one of his ears, and below the external ear was an enlarged gland. Aural treatment had been tried without success, until a diseased lower molar was diagnosed as the probable cause of the trouble. This was extracted, after which the discharge and morbid secretion soon disappeared and the enlarged gland subsided. Dr. Hilton was of the opinion that the dental irritation was conveyed to the auditory canal and induced a morbid secretion. This morbid secretion led to an ulceration, and the fluid from the ulcer being absorbed by the lymphatics and carried to the gland, caused its enlargement. Josef Gruber tells of a boy thirteen years of age who showed symptoms of fright and complained of a very disagreeable sensation in both ears whenever he heard the slightest unexpected sound. This increased sensibility disappeared upon the extraction of a decayed and painful tooth.

Cases of epilepsy and paralysis caused by carious teeth have been reported, but might reasonably be discredited were it not that they have been recorded by observers whose veracity and ability in diagnosis are unquestioned. The famous Dr. Benjamin Rush, of Philadelphia, in a letter to Dr. Miller, written in the year 1802, tells of a case of epilepsy in his practice that was cured by the extraction of several decayed upper teeth, and a similar case is quoted by Tomes as having been reported by Dr. Ramskill in the *Medical Times and Gazette*. In *Guy's Hospital Reports* for 1868 is the record of a woman who had suffered for two years from severe pains in the face, neck, and left arm. Nearly all muscular power in the arm had been lost and she was unable to raise it to her head. The extraction of a lower wisdom tooth gave immediate relief, and all the symptoms disappeared within a very short time. A lower wisdom tooth was also the cause of paralysis of the arm in the case of a woman, twenty-four years of age, reported by Salter, and reports of similar cases have from time to time been published.

But perhaps the most common and certainly the most painful reflex disturbance liable to arise from diseased teeth is facial neuralgia. Given a patient with the neuralgic diathesis, and the most trivial dental lesion seems sufficient to bring on an attack of this malady. Indeed, patients who do not appear to possess more than an ordinary susceptibility to reflex or sympathetic disturbances frequently suffer from severe neuralgic pains as the result of apparently trifling dental irritation. Dr. Garretson tells of a surgeon of the United States navy who came home from China under the impression that he had softening of the brain. He was suffering severely, and had consulted many physicians that he had met abroad, but had received no benefit from their treatment. Upon examining the mouth, Dr. Garret-

son found an upper bicuspid tooth with one of the most beautiful fillings in it that he had ever seen. At a venture he extracted the tooth, and thereby effected an instantaneous cure. Some time ago the writer was consulted by an apparently healthy old gentleman, who stated that he was suffering from *tic douloureux*. He had been treated by prominent physicians in various cities without obtaining relief, and had given up all hope of a permanent cure. Life had become a burden to him, however, and as the extraction of a couple of sound teeth had given him temporary relief upon a former occasion, he was considering the advisability of sacrificing his teeth one by one. None of them were carious or tender to percussion, but, upon making a careful examination of the gums, a minute opening was found, just back of the right upper cuspid, that appeared to lead upward to the fragment of a bicuspid root. There was no swelling, no tenderness, no pus, but extraction was advised, and afforded prompt and permanent relief from all the symptoms.

In concluding this article—which, by the way, is intended to be merely suggestive—the writer feels that he can not do better than quote from the letter of Dr. Rush, before referred to:

I can not help thinking that our success in the treatment of all chronic diseases would be much promoted by directing our inquiries into the state of the teeth of sick people, and by advising their extraction in every case in which they are diseased. It is not necessary that they should be attended with pain to produce disease, for splinters, tumors, and other irritants often bring on disease and death when they give no pain and are unsuspected as the cause of them. The translation of sensation and motion to parts remote from the place where impressions are made appears in many instances, and seems to depend upon an original law of the animal economy.

Fortunately, we no longer find it necessary to extract all decayed teeth; but the necessity for making a thorough examination of the mouth in cases of chronic disease is as great now as it was then, and, with the extension of our knowledge, our ability to relieve suffering has greatly increased.

311 BROWN BLOCK.

LUPUS, ITS EXTIRPATION.

WITH REPORTS OF CASES.*

By B. MERRILL RICKETTS, M. D.,

CINCINNATI.

So much has been said about this disease during the last three years by men who have spent the greater part of their time not only in treating it, but in studying its pathology, that it might seem preposterous for one with limited advantages to offer anything new whatever concerning this much-dreaded disease. The ravages that it produces and its persistent character have made not only the sufferer but the surgeon desperate. Considered in the light of experience, it is not strange that the treatment of to-day gives

but little relief. Koch has perhaps more nearly approached a panacea for lupus than any other investigator. Whether or not the future treatment and consequent good results are to be obtained by following up his principles is yet a question. That the disease is both local and constitutional there seems to be no doubt, and when a lesion is cured the preponderance of evidence is that it was a mistaken diagnosis; that it was not lupus, but some other disease of less virulency. However this may be, we must necessarily depend, to a great degree, upon the clinical history and appearance of the lesion. While we depend upon the microscopical investigation, we must not accept the picture as one to be recognized at all times. While I believe that the bacilli when found indicate a certain disease, I can not accept a statement that it is not that disease because the bacilli can not be found. In other words, I am not ready to accept the microscopical investigation as infallible. I would rather depend upon the clinical history and appearance in making a diagnosis of lupus than the statement of any microscopist. Neither do I believe in the infallibility of any diagnostician. Anything may be deceptive; just so may a person be deceived. The rarity of the disease and the few cases which the average practitioner has the opportunity of seeing, especially outside of the larger cities, is no doubt the occasion of mistaken diagnoses. It is not supposed that a man who sees a great many cases of disease is as likely to be mistaken in his diagnosis as one who sees but few. Consequently we must rely mostly upon the statement of those with greatest experience, especially in distinguishing lupus from other diseases. My experience has been somewhat limited—I have seen in clinical and private practice about sixty-five cases—but I was early convinced that treatment of any kind availed but little. This naturally led me to resort to more desperate means than were usually employed by those with whom I was associated. Scarification, curetting, cauterization in the various ways, the application of caustics, such as nitrate of silver, carbolic acid, etc., all convinced me that the disease, when possible, should be excised or that constitutional treatment was necessary. Constitutional treatment having been found useless, left to my mind nothing but total extirpation. Unfortunately, the disease occurs mostly about the face, eyelids, nose, ears, and lips—places where extirpation is made with the greatest difficulty, and where the greatest deformity is the result. I believe that the extirpation of lupus is about as certain, when done in its earliest stages, as some of the forms of epithelioma and sarcoma. The question arises, When does it become constitutional, and to what degree may it become constitutional when extirpation would be useless? It is also important to determine that degree in any of the malignant growths. If lupus is found upon the finger, we would not hesitate to amputate it; if lupus were to appear upon the hand, we would naturally resort to all means of treatment to save the hand. Would it not be better to remove the hand early in the progress of the disease? We know that the removal of a finger affected with lupus has cut short the disease, and that the patient has lived for years without any recurrence. Now, if this is so, why is it not rational surgery to extirpate any

* Read before the Dermatological Section of the First Pan-American Medical Congress, held in Washington, D. C., September 5, 6, 7, and 8, 1893.

diseased lesion that may appear upon any part of the body? The means that we now have at our command in restoring parts with both single and double pedunculated grafts should encourage both the operator and the patient in resorting to early surgical interference, no difference upon what part of the face the disease may be found. The dread of suffering, taking an anæsthetic, and being deformed, I might say, is the occasion of so much procrastination, not only in the treatment of lupus, but all other diseases. What are we to do with these unfortunate creatures when they present themselves to us for treatment? Are we to tell them that nothing can be done, that it is folly to attempt to relieve them? Believing, as I do, that all diseased tissue should be removed when possible, I have been led to extirpate lupus on several occasions with most gratifying results. So far I have not made any classification of the disease. It is, however, necessary in order that we may talk more intelligibly and simplify matters. I have treated the two forms of lupus in the same manner.

1. Lupus vulgaris.

2. Lupus erythematosus.

Of the former I have seen forty-two cases; of the latter, twenty-three.

CASE I.—Female, aged sixty-seven years, single, white, American, poorly nourished, posterior spinal curvature, most excellent habits. There had existed for about eighteen years a lesion upon the left cheek on a line with the lower edge of the ear. This was red and had gradually increased in size, with here and there a tubercular nodule, giving all the characteristics of lupus vulgaris. There were also cicatrices in the surrounding tissue, showing that some of them had at various times healed and given place to more recent ones. She consulted me to see if something could not be done. My diagnosis being that of lupus vulgaris, I offered no suggestions other than the total extirpation of the diseased tissue. This she readily consented to, and under the influence of cocaine, subcutaneously, I removed what I believed to be the entire amount of tissue involved. Union was primary, and she was discharged at the end of five days. Within the course of six months it was evident that the disease had not been entirely removed, and I again excised it under the influence of cocaine, with the same good results, so far as healing was concerned. She was discharged at the end of six days, and we again felt that we had done all that was necessary to rid her of the annoyance. At the end of twelve months the disease again manifested itself, and I concluded to excise it as before under the influence of cocaine, curetting the surface thoroughly, and applying arsenious acid in combination with cinnabar. This was done, and an extensive sloughing was the result. It required several weeks for the wound to heal by granulation, her health in the mean time being somewhat impaired. However, by judicious management and her ability to take the requisite amount of food, her recovery was uninterrupted, and she was discharged at the end of eight weeks. There was no family history of tuberculosis in this case. The spinal curvature was attributed to an injury. However, I am inclined to believe that the subject was a tubercular one without any special manifestations.

She died three years after from an attack of acute gastritis, the lupus never having manifested itself again in the slightest degree.

I report this case to show the importance of persistency in the treatment not only of epithelioma and other malign-

nant growths, but that of lupus in any form. What the result would have been at the end of ten or fifteen years, had she lived, I am, of course, unable to say.

CASE II.—Female, aged seventy years, widow, white, German, in a most excellent state of health, consulted me in January, 1889, for a small lesion upon the margin of the right nasal ala, which had existed for eight years. The disease had been slow in progress, giving her no special discomfort or annoyance. It had, however, made inroads upon the wing, involving a surface about half an inch along the lower margin, extending about three eighths of an inch upward along the side of the nose. My diagnosis was lupus vulgaris, and my suggestion was its total extirpation. This was consented to, and the operation made under the influence of cocaine, subcutaneously. A sliding flap was taken from the cheek and placed in the intervening space, allowing the lower margin of both remaining pieces of the ala to form the lower margin of the wing. Primary union was the result, and the patient is to-day entirely free from the disease. This has now been fifty-four months. Possibly there may yet be a recurrence, but has not the result proved that the operation was justified? There was no indication of tuberculosis in this case, nor was there any history of its having existed in her family.

CASE III.—Male, aged forty-eight years, white, Irish, excellent health, weighing about one hundred and sixty-five pounds, laborer, irregular and dissipated habits. He consulted me in July, 1887, for a lesion upon the left side of the nose, about midway between the inner canthus and lower margin of the ala, which had existed for eleven years. The disease had been slow in its development, and there was no special discomfort or pain. It gave all the characteristics of lupus vulgaris. I advised its total extirpation, and made the operation on the following day, under the influence of cocaine, subcutaneously. I removed a piece of integument about an inch wide and an inch and a half long, cutting through the cartilage into the nasal cavity. A sliding flap was made, filling the space perfectly, and resulting in primary union. This has never recurred, and I feel sure the man is as exempt from a recurrence of this disease as if it had been epithelioma. He did not give any history of tuberculosis, except on the father's side, in which case the patient's own uncle died from what was considered consumption following pneumonia.

CASE IV.—Female, aged sixty-three years, single, white, American, in good health, weighing one hundred and twenty pounds, consulted me in 1890 for a lesion upon the left cheek just in front of the ear, covering a surface about an inch and a half in diameter. This answered the description of erythematous lupus, and it was so classified. It had existed about twelve years, without giving any pain or discomfort except a burning sensation, itching, and extensive exfoliation of the cuticle. It had gradually become larger, and caused considerable anxiety on the part of the patient and her friends. Extirpation was suggested and readily consented to. This was done after thoroughly anæsthetizing the field of operation with subcutaneous injections of cocaine. The edges of the wound were coaptated with silk sutures, and primary union secured. I cut in this, as in all the other cases, far beyond the line of demarcation, and removed the entire integument and cellular tissue overlying the muscular structures. There has not in this case been any return.

This is the only case of erythematous lupus in which I have been able to do the operation of extirpation, and I am quite sure that I would earnestly advise such a course, although my experience is limited to one case. True,

where the disease has been allowed to progress to an extensive degree over the cheeks or about the eyelids and lips, or nose, or ears—in other words, where the disease has been allowed to extend to such a degree that extirpation would cause great deformity, which could not be prevented or overcome by grafting—one must necessarily hesitate in resorting to such radical measures.

In conclusion, I wish to say that I would not hesitate to extirpate lupus tissue in any case where the parts may be restored in any way whatever. Neither would I hesitate to amputate a finger or toe upon which either one or the two forms of lupus existed. There are cases, however, where it might be unwise to extirpate the lesion. Even in cases of multiple lupus I would advise their excision if the areas affected are small. Whether this plan of treatment should be limited is a question with the operator. So far, I have seen but three or four cases of multiple lupus. I am quite sure that in each case good would have resulted from the extirpation of the lesion which either one of them possessed. Would it not be well for us to draw a halt in saying that there is nothing to be done in cases of lupus? I believe that the pendulum should be swung in the opposite direction, and that the preponderance of evidence at the present time fully justifies this statement. Even though the disease should recur, it is not until quite a length of time has elapsed. I believe that the end justifies the means, and that it is humane to subject these unfortunate patients to the operation of extirpation, even though the relief be but for a short time. This, of course, requires more judgment in cases of lupus upon the various parts of the face. I have presented the subject to see if it can not be brought more prominently before the surgeons—that is, the operation of extirpation. I think that the cases I have reported, and the subsequent good results from extirpation, fully substantiate what I have said. Possibly I am deceived in my diagnosis, but I am thoroughly convinced in my own mind that I am not. I do not mean to be understood as saying that the disease will not recur in either one or all of the cases; surely I could not be so foolish as to say that. I propose to extirpate lupus, if possible, wherever found. I believe if this is done that a great deal of suffering, disfiguration, and I might say loss of life, will be prevented.

It would give me great pleasure if those who have been interested in this procedure would address me upon the subject. By doing this, I hope to tabulate the various cases in which the operation has been resorted to.

"THE TRINIDAD," 137 BROADWAY.

LOCAL ANÆSTHESIA BY ETHYL CHLORIDE.

By C. L. GIBSON, M. D.

ETHYL chloride is one of the newest local anæsthetics suggested. My experience leads me to believe that it is destined to occupy a useful place among our local therapeutic agents.

There are several preparations made by various firms, and, as far as I have observed, of equal merit. The prepa-

ration which I have used is that made by Dr. Bengué, of Paris. Its properties are thus described by the maker: "Ethyl chloridé is a colorless liquid, with a slight ethereal odor of an agreeable character. The density is 0.874 at 41° F.; it boils at 52° F.; its vapor density is 2.219. Ethyl chloride is very inflammable, burning with a green-edged flame and setting free hydrochloric acid."

The anæsthetic comes in glass bulbs of the capacity of a little over an ounce. The bulbs are provided with a capillary orifice, upon which a tightly-fitting cap is screwed, preventing evaporation. One bulb furnishes sufficient anæsthesia for six to eight minor procedures. In using this agent, the cap is first unscrewed and the bulb held in the palm of the hand, when the liquid will be instantly volatilized by the heat of the body. The bulb should be held horizontally and six to eight inches from the part, playing the stream back and forth as evaporation is produced. At first a hyperæmia results, then pallor, and gradually the part assumes a parchment-like appearance. From one to two minutes is needed, and anæsthesia lasts as long again.

My experience with ethyl chloride comprises some twenty-five cases of minor surgery, chiefly cellulitis of the fingers, abscesses of the jaw, buboes, sinuses, boils, and carbuncles. Most of the cases were relieved by a single incision, and in such the anæsthesia was most satisfactory. Where more extensive procedures were demanded, where deeper structures were divided, for efficient curetting, etc., the agent was seldom efficient.

Its action in certain cases, however, was ideal. In felons, for instance, the single rapid incision was generally effected absolutely without pain. Every one that is called upon to incise felons knows how excruciating the pain is. The patient winces at the slightest touch; the introduction of cocaine solutions subcutaneously is almost a cruelty, as intense pain results both from the needle pricks and from increase of the tension in the indurated tissues. Moreover, the cocaine often proves powerless to overcome the aggravated conditions. It is especially in such conditions that I believe chloride of ethyl will prove invaluable.

No attempts to use ethyl chloride were made in procedures requiring more than a few seconds' time, nor where careful dissection was needed, as the agent so changes the character of the tissues. It can, however, be employed to great advantage in removing small sections of tumors for microscopical examinations.

It will occasionally be found useful to combine the action of the new agent with that of cocaine.

I had recently to operate for ingrowing toenail on a young child. When I made the first prick of the needle, in order to cocaineize the parts for Anger's operation, the little patient grew so obstreperous that I could do nothing with her. I laid down the syringe and sprayed the proposed line of insertion of the needle with the chloride of ethyl, obtaining enough anæsthesia to allow the introduction of the needle without attracting the child's attention, and the battle was won in favor of the operation.

The ethyl chloride will be found of considerable value in dermatological practice, especially for thorough scarification and application of the actual cautery. Dr. Bengué's

bulbs intended for dental surgery are provided with curved nozzles, allowing the spray to be deposited on the desired spot. I have had no opportunity to verify the use of this agent in such work. The following are Dr. Bengué's directions:

"In extracting teeth the jet should be directed to the dental nerves, as near their origin as possible; in front of the ear for the upper teeth, behind the angle of the inferior maxilla for the lower ones. The spray should be applied for about a minute; but the anæsthesia thus produced is not so complete as when the jet is applied directly to the gums, and, as this last method is devoid of danger, its use is advised in all cases except those of the last molars, which are not easily reached by the spray."

Differing from the usual action of these agents, which act by refrigeration, I have never observed any bad after-effects, such as great pain or sloughing of the tissues. Care should be taken that the jet is not brought into contact with a light or incandescent surface, as the substance is highly inflammable. The eye should be protected from the spray. General symptoms of poisoning may be produced by inhalation, according to Crocker.

My attention was first called to the value of ethyl chloride as an analgesic by its success in the hands of a French gentleman in the treatment of a severe intercostal neuralgia. I have had very little occasion to use it for such purposes, but it has certainly proved very efficient in treating the pain of a supra-orbital and occipital neuralgia. The jet was played over the painful point for a few seconds at a time, being repeated at short intervals on recurrence of the pain without the slightest bad after-effect. Dr. Bengué suggests the use of chloride of ethyl in a very extensive class of cases, among which I will mention all the forms of neuralgia and rheumatic pains, various hyperæsthetic and reflex conditions, and the various forms of colic.

The chloride of methyl, as far as I have witnessed its action in the hands of others, is identical in results with chloride of ethyl. It is less convenient to use than the preparation with which I have experimented, as it is contained in little bulbs whose capillary end must be broken off before use, thus necessitating the employing of the entire contents at one sitting. A rough estimate of the cost of the ethyl chloride, as I have used it, is ten cents for each surgical anæsthesia.

46 WEST THIRTY-THIRD STREET.

The Death of Dr. Edwin N. Colt, of Brooklyn, occurred on the 15th inst. He was in his eighty-third year, and was born at Hinsdale, Massachusetts. He obtained his medical degree, when twenty-two years old, at the Berkshire Medical Institution. Sixty years ago he took up his residence in Williamsburgh, now a part of the city of Brooklyn. At that time the village of Williamsburgh was estimated to have a population of five hundred souls. In 1891 Dr. Colt was tendered a complimentary banquet in honor of his eightieth birthday and of his long-continued professional activity in the community that had grown up around him.

The Death of Dr. William B. Towles, of Charlotte, Va., professor of anatomy in the University of Virginia and in the University of Vermont, took place on Monday, the 18th inst. Professor Towles was one of the most popular and effective lecturers on anatomy in the country. He was fifty-three years old.

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THE HYGIENIC AND PHYSIOLOGICAL PROPERTIES OF
ALCOHOL.

THE *Medical Week* for September 1st contains a *résumé* of some papers read before the fourth International Congress against the Abuse of Alcoholic Liquors, held at the Hague on August 16th. Sir Dyce Duckworth expressed the opinion that from a scientific point of view the use of alcohol could not be regarded as injurious to health. On the contrary, owing to its nutritious properties, it was likely to be of signal service in many cases. No legislation of any kind would ever succeed in suppressing its consumption, and, even were such suppression possible, the advisability of such a proceeding would still have to be proved. It had not been demonstrated that the use of alcohol was injurious to the nations of Europe, for the most highly civilized nations made use of alcoholic liquors. There was no evidence that the simultaneous use of alcohol and good food was injurious to the human body, while for certain people complete and continual abstinence from alcohol was not to be recommended. It was not to be denied that the offspring of alcoholic or neurotic parents should abstain from alcohol, or that the use of impure and adulterated alcoholic liquors was attended by serious risks to health. Total abstinence had nowhere succeeded in bringing about the disappearance of intemperance, and the young should be taught to recognize the difference between the legitimate use and the abuse of alcohol, and to moderate their appetite for that article.

Dr. Schmitz, of Bonn, agreed in many respects with Sir Dyce Duckworth's opinions. He did not believe that alcoholic liquors were essential to the preservation of good health, though the moderate use of alcohol was not injurious to health and even exerted a favorable influence on certain physiological functions. But the abuse of alcohol was dangerous, even for healthy individuals, and was positively fatal for those of a nervous constitution. He also considered alcohol a valuable, and in some cases an indispensable, remedy in disease.

Professor Forel, of Zurich, dissented from this latter opinion, and declined to admit that alcohol had any therapeutic value whatever. In his opinion, the favorable effects observed after its administration in certain cases were the result of mental suggestion by the medical attendant. This opinion was sustained by Dr. Pearse, of London, who protested against Sir Dyce Duckworth's and Dr. Schmitz's opinions.

It can not be said that this congress has done much to further the solution of the problem regarding the utility of alcohol. Sectarianism seems to be as influential in creating opinion in this matter as it has been in other things medical, though

it must be acknowledged that it is remarkable that the majority of physicians should continue the employment of an agent that did not afford satisfactory evidence of beneficial effect. As the punster said: If St. Paul thought a little wine was good for the stomach's sake, why should not the physician believe it good for the stomach's ache?

THE CHINESE PRACTICE OF FOOT-BINDING.

In the June number of the *China Medical Missionary Journal* there is an interesting article on this subject, by Dr. Marie Haslep, of Shanghai, with an editorial foot-note giving citations from an article by Dr. Faber. It seems that Chinese writers disagree as to the origin of the practice, but it is thought to be certain that it originated in an Imperial harem during the T'ang dynasty, about 1,400 years after the time of Confucius. It is said to have been resorted to to disguise natural deformity. It is illegal, because the emperor's will is the country's law, and the emperors of the present dynasty have publicly prohibited it. It is also contrary to Imperial example, for the Empress of China, the highest ladies of the court, and all Manchu ladies allow their feet to grow in their natural form and to their normal size.

According to Dr. Haslep, the ordinary manner of binding the feet is as follows:

While the great toe is left straight, the other toes are folded on the plantar surface of the foot, often until the tips of the toes are on a line with the edge of the inner side of the foot, and then the foot is bound "snugly." Gradually the bandage is made tighter and tighter. When the metatarsal bones begin to curve, making the characteristic lump on the dorsum of the foot, the bandages are tightened more rapidly than before. If swelling takes place above the ankle, the foot is bandaged more tightly. If ulceration occurs, the foot is bandaged tighter. Swelling is not a desirable complication. Ulceration is greeted with joy, for it is usually a sign that the foot is yielding gracefully to the inevitable. "*Lan siar kiäh*" (ulcer, small foot) is a common saying. To make the smallest foot, with the minimum of suffering and produce no untoward results, is the desideratum; this process should take about ten years. Patience will then show her perfect work; that which foreigners call a deformity and restricted locomotion are necessary sequels, not untoward results. This is the method ordinarily practiced. But there are careless persons, or cruel, who, having neglected to begin to bandage the feet of a child at the proper time (which is when she is between three and five years of age), or having bought a child with unbound feet, desire to accomplish the same end in a shorter time. In these cases the feet are bandaged tightly and smaller from the first. The work is sometimes done by a relation or friend, ignorant of the risks taken by so doing, or ignoring them. Oftener the services of a professional bandager are obtained. This woman carries with her a stock of small wooden shoes of various sizes. These are the patterns. Her patrons choose the size desired. A contract is then made to have the foot of this size in a certain length of

time—three years or more or less as the case may be. The shorter the time, the harder for the child, especially if she is one of the neglected ones whose feet have been left to Nature more years than is well, if they can not be left with her for all time. The professional bandagers, for the most part, fulfill their contracts with superb indifference to the children's sufferings, and sometimes with such results as the death of the child: gangrene of the feet, necrosis of bones, etc. In any case, says Dr. Haslep, with the predisposing element of impeded circulation, freezing or burning, both common casualties, will excite trouble more readily than in the natural foot. What shall be done, she asks, to stop this cruel practice? To her there appears but one true way, and she thinks it is also sure. Educate the heads and hearts, she says, and let these educated heads and hearts care for the feet. This will take many a year, and, judging from the history of its analogue in the West, China may become a Christian nation, may take her stand among the foremost nations of the world, may even, as some prophesy, lead all other nations, and her women hold a position above that of even the most envied women of to-day before the era in which all feet will be of natural size arrives.

MINOR PARAGRAPHS.

THE DEATH OF STANLEY'S FAVORITE SURGEON.

SURGEON T. H. PARKE, of the Emin Pasha Relief Expedition, commanded by Stanley, died suddenly last Sunday. He was on a visit to the Duke of St. Albans, at Alta Craig, when his sudden and fatal illness came on. Dr. Parke's relations with the great explorer on the heroic march across the Dark Continent were of the most intimate and confidential nature. He was unselfish and devoted to the men in his detachment—for he was a captain as well as a surgeon—to a degree that has won the admiration of all who have read the narrative of Stanley, of his marches and countermarches in Darkest Africa. Stanley speaks of him as "the good surgeon" and "our priceless doctor," and says no case of injury or disease could be so offensive or repugnant to the senses as to rob it of its interest to the surgeon in charge. When Parke was himself broken down by fever, and unable to go to the bedside of his comrades without support, he would have his men carry him and his medicine chest to where the sick men lay. In fact, there was probably no exaggeration in Stanley's ante-mortem epitaph, which recites that "his devotion was as perfect as human nature is capable of rendering." On his return home to England, Parke was made the recipient of many honors by the profession in London and Dublin and by the Royal College of Surgeons of Ireland. The Government also, although somewhat tardily, recognized the worth and services of this soldierly surgeon by giving him a desirable promotion in the army medical staff. He was about forty years of age.

THE FIRST INTERNATIONAL SAMARITAN CONGRESS AT VIENNA.

This congress has held its first meeting in Vienna under favorable auspices and with good results. Dr. von Esmarch, of Kiel, has been largely instrumental in the formation of this organization, as well as in the establishment at Berlin and Vienna of the two chief local Samaritan societies. These societies are

governed by the same degree of discipline that prevails in the fire departments of all great cities. The society of Berlin has its various stations in different parts of the city, all connected by telegraph with each other and with the offices of selected medical officers, some of whom are constantly within reach of emergency calls, very much as the ambulance surgeons of our American cities are. These various stations are at all times available to those who are suffering from recent slight injuries, such as do not require the calling of an ambulance. Three or four uniformed men are the usual complement to a station, but whenever a number of additional helpers is needed, there are always men ready, by previous agreement, to respond from the outside. The superintendent of the station may be a paid employee, but the others are ordinarily volunteers, who for the love of the work find their recompense in learning how to relieve their injured fellow-citizens. The hours of duty are so apportioned into day and night watches that one relay of Samaritans relieves another with promptness and without hardship to any. The men are drilled in classes, and by twos and threes, how to carry the injured in their arms or by means of the stretcher, and how to restore suspended animation, stanch hæmorrhage, etc. Not every candidate for the position of volunteer can be accepted, and those especially who at the outset are clumsy and apt to handle a person without tact are not desirable subjects for the drill. There are other and better materials always ready to volunteer—men who are teachable, considerate of others, and light-handed when they come to the relief of the injured. The code of rules that governs the operations of the societies that now exist on the Continent is that of which Dr. von Esmarch is the author.

GUNSHOT WOUND OF THE LIVER.

An interesting case of recovery from a gunshot wound of the liver is reported by Dr. Closs, of the Dunedin Hospital, in the *New Zealand Medical Journal* for April. The number of recoveries after this injury is small. Longmore saw only one case of recovery during the Crimean campaign. Surgeon Otis recorded four recoveries out of thirty-two cases. The Surgeon General's *Circular No. 3* refers to four recoveries out of fifteen cases of this injury. Dr. Closs's patient was a man, aged forty-two years, who attempted to commit suicide with a pistol. This occurred last January. The man was admitted into the hospital with collapse, from both shock and hæmorrhage, with much nervous excitement. The course of the bullet was from the eighth intercostal space in front backward and downward. The bullet, of the conical variety, was extracted on the same day, by an incision made close to the right side of the spine, on a level with the transverse process of the first lumbar vertebra. A drainage-tube was readily passed through the posterior incision about four inches, in a direct line with the wound of inlet. There was no escape of bile, and this fact is quite in accord with the records respecting many similar gunshot wounds. The external wound was kept aseptic, and a dry dressing was used. A slight amount of necrosis of the soft parts about the wound of impact took place. Jaundice and peritonitis were present during convalescence. The man was discharged from the hospital in twenty-four days after the wounding. The highest temperature was observed on the second day—102° F.; the normal temperature was reached about the fourteenth day, and there were only trifling fluctuations after that date. The pulse and respiration were more variable. The ball had undoubtedly passed directly through the liver. When last seen, the patient was able to go about as well as he had done before the shooting.

THE QUESTION OF CÆSAREAN SECTION.

In an article published in the *Centralblatt für Gynäkologie*, Velits agrees with those authors who think that cases of Cæsa-rean section with the relative indication should be reserved for operation in well-appointed hospitals. Two cases of his own are narrated in which both mothers and children were saved. During the suturing of the uterus the cervix was compressed manually. Two rows of sutures were passed. The deep layer included the uterine muscle, avoiding the decidua on the one hand and the peritonæum on the other. As soon as the sutures were passed the compression of the cervix was discontinued, and then a series of peritoneal Lembert sutures was passed. In the first case the uterus remained freely movable; in the second it became adherent by a broad surface to the abdominal wall. In comparing the different methods of operation, that in which compression of the uterus is accomplished by means of an elastic ligature is disapproved of because of the uterine atony which may follow its use. If atony occurs, the author recommends the use of the uterine tampon rather than the Porro operation. For suture material silk is preferred. Although the reported results of repeated Cæsa-rean operations upon the same woman have been favorable, it must be remembered that such operations may be extremely difficult, especially when intestinal adhesions have formed. The author records himself as believing that it is a duty one owes to humanity to sterilize by ligation of the Fallopian tubes those women who have required the operation of Cæsa-rean section and can not be delivered by the natural passages. He also believes that in osteomalacia it is not the Porro operation that is demanded, but the conservative Cæsa-rean section, together with the removal of the tubes.

LUNACY IN IRELAND.

From the *Forty-second Report of the Inspectors of Lunatic Asylums in Ireland* it appears that the total number of the insane under care in the various asylums and workhouses on the 1st of January last amounted to 17,124, being an increase of 436. The previous year also showed an increase of 437. The number of the insane, it may be mentioned, has increased from 249 in 100,000 of the population in 1880 to 369 in 100,000 in 1892; and if to this is added the number of the insane wandering at large, according to the census return of 1891, the proportion would be found to amount to 476 in 100,000. This marked increase, which is absolute, not relative, taken in connection with a diminished population, is of serious import and is altogether unexplained. It calls for special investigation, and steps should be taken to elucidate the problem. As a consequence of the increase, the accommodation in district asylums in Ireland still continues quite inadequate to supply the wants of the insane population. The overcrowding is rapidly increasing, and the necessity for further accommodation is becoming more and more urgent. However, it is satisfactory to learn that the governors of almost every district asylum in Ireland are now fully aware of the necessity of meeting the requirements of their respective districts, and, in a large number of instances, have already sanctioned the necessary expenditure for alterations and additions, so that it is hoped that within a reasonable time the accommodation will be rendered in some degree better adapted to meet the immediate wants of the insane poor.

THE FIRST NAPOLEON AND THE OBSTETRICIAN.

The *Union médicale* quotes from the *Bulletin médical des Vosges* a curious extract from a book by Maze-Sencier entitled

Les Fournisseurs de Napoléon I^r by which it appears that Dr. Dubois attended the empress Marie Louise in confinement. Parturition was protracted and laborious, and Dubois, in his anxiety, acquainted the emperor with his apprehensions. Napoleon said to him: "Act as you would if you were dealing with a *bourgeoise* of the rue Saint-Denis; above all, Dubois, save the mother." Mother and child both were saved, and the emperor caused Corvisart to express his delight to Dubois and to ask what he wished as his reward. Dubois replied that he wanted many honors and a good deal of money. He was made a baron and given 100,000 francs.

BACTERIOLOGICAL INVESTIGATIONS IN THE NORMAL AND THE FEBRILE PUERPERIUM.

VON FRANKE's investigations, published in the *Zeitschrift für Geburtshilfe und Gynäkologie*, have not been extensive enough to warrant comprehensive conclusions, but he feels justified in offering the following: 1. The *Streptococcus pyogenes* which is found in the uterus in recently delivered women, which is usually free from bacteria, causes in only a few cases a slight elevation of temperature, with trifling disturbance of the general condition. 2. The *Bacterium coli commune* may be a cause of puerperal fever. 3. Sapremic fever during childbed is a rarity. It can be absolutely diagnosed only in cases in which a careful bacteriological examination of the lochia shows the absence of the pathogenic micro-organisms and the presence of the saprophytic.

ARTESIAN-WELL WATER AN ALLEGED CAUSE OF FEVER.

FOUR fatal cases of typhoid fever have been reported at Paterson, New Jersey, as due to the above-named cause. Forty cases of the fever are said to have occurred in about a month in a limited district of that city where the supply is drawn largely from two artesian wells. In a single block of that district fourteen cases have arisen. The inculcated water has been examined by the State Chemist, Dr. Wallace, and found to be heavily charged with impurities.

SOMETHING NEW ABOUT SCIATICA.

A NEWSPAPER with a weakness for medical items published the following remarkable statement in a recent cable dispatch regarding the illness of Prince Bismarck: "The sciatica has now reached his arms and prevents him from using his hands, so that it is necessary for his attendants to feed him."

TYPHOID FEVER AND THE ALGERIANS.

ACCORDING to Professor Sezary (*Union médicale*), the aborigines of Algeria enjoy almost absolute immunity against typhoid fever, but typhus is very common among them.

ITEMS, ETC.

The Medical Society of the State of New York.—The following business committee has been announced by the president: Dr. Henry Flood, of Elmira, Dr. L. Bolton Bangs, of New York, and Dr. Edward Clark, of Buffalo, to whom communications regarding papers for the next meeting of the society may be addressed. The next meeting will be held February 6, 7, and 8, 1894.

The Practitioners' Club is the title of a new medical society in Madison County, Kentucky. The officers are: Dr. M. C. Heath, president; and Dr. Clarence H. Vaught, secretary. The meetings are to be held on the second Tuesday evening of each month.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 19, 1893:

DISEASES.	Week ending Sept. 12.		Week ending Sept. 19.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	37	11	33	7
Scarlet fever.....	31	1	44	4
Cerebro-spinal meningitis....	6	5	1	0
Measles.....	57	7	41	5
Diphtheria.....	95	28	99	31
Small-pox.....	8	2	18	3

The Richmond Academy of Medicine and Surgery.—At the next regular meeting, on Tuesday, the 26th inst., the subject for discussion will be *Oster's Practice of Medicine* (D. Appleton & Co.), the discussion to be opened by Dr. C. R. Cullen.

The Society of the Alumni of Charity Hospital will hold a meeting on Wednesday, October 4th.

The Death of Dr. Daniel J. MacGowan, of Wenchow, China, at the age of seventy-eight years, removes the oldest American resident in that country. He was a native of Massachusetts, the son of North of Ireland immigrants. Fifty years ago he went out as a pioneer medical missionary of the Baptist, Southern, societies. In later years he accepted a position as medical officer to the British customs service at Wenchow. He also journeyed considerably for the two years last past in Japan, Siberia, and Manchuria, a task apparently too great for his declining years. He was an alumnus, of the class of 1840, of the College of Physicians and Surgeons.

The Death of Dr. William T. White, at the age of sixty-four, took place on Sunday, the 17th inst. He was a graduate of the New York Medical College, of the class of 1858. For several years he was in the medical service of the Panama Railroad. At the time of his death, and for many years before, he was the editor of the *Medical Register of New York, New Jersey, and Connecticut*.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 10 to September 16, 1893:*

MCCULLOCH, CHAMPE C., JR., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Sam Houston, Texas, and ordered to Fort Ringgold, Texas, for duty, relieving PILCHER, JAMES E., Captain and Assistant Surgeon. Captain Pilcher, upon being relieved, is ordered to Fort Niagara, New York, for duty, relieving ROBERTSON, REUBEN L., Captain and Assistant Surgeon. Captain Robertson, upon being relieved, is ordered to Fort Omaha, Nebraska, for duty. LA GARDE, LOUIS A., Captain and Assistant Surgeon, will, upon the completion of his duties in connection with the World's Columbian Exposition, report in person to the commanding general, Department of the Colorado, Denver, Col., for duty as attending surgeon and examiner of recruits in that city.

MIDDLETON, J. V. D., Lieutenant Colonel and Deputy Surgeon General, Leave of absence for one month, to take effect on or about October 1, 1893, is hereby granted, with permission to apply for an extension of fifteen days.

STILES, HENRY R., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Omaha, Nebraska, and will report in person to the commanding officer, Fort Meade, South Dakota, for duty at that post.

WOODRUFF, CHARLES E., Captain and Assistant Surgeon. By direction of the Secretary of War, the leave of absence granted is extended four months.

POWELL, JUNIUS L., Captain and Assistant Surgeon. The leave of absence granted is extended ten days.

HOFF, J. VAN R., Major and Surgeon. Leave of absence for one month is hereby granted.

BAILY, J. C., Colonel and Assistant Surgeon General. Leave of absence for one month is granted, to take effect about the 5th inst.

HEIZMANN, CHARLES L., Major and Surgeon, Fort Douglas, Utah. Leave of absence for one month is granted, to take effect between the 25th inst. and the 5th proximo.

Society Meetings for the Coming Week:

MONDAY, September 25th: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, September 26th: New York Dermatological Society; Buffalo Obstetrical Society; Medical Society of the County of Lewis (quarterly), N. Y.; Practitioners' Club, Madison County, Ky.

WEDNESDAY, September 27th: New York Pathological Society; Metropolitan Medical Society (private); Medical Society of the County of Albany; Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield); Philadelphia County Medical Society.

THURSDAY, September 28th: New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); New London, Conn., County Medical Society (extra, New London); Pathological Society of Philadelphia.

Letters to the Editor.

POISONING BY ARSENIC.

DUBLIN, September 1, 1893.

To the Editor of the New York Medical Journal:

SIR: I am not a medical practitioner, but a barrister; but, feeling some interest in poisoning cases that come before our courts, I wish to ask your able correspondents a few questions on the subject. They arise out of the well-known Maybrick case, which has excited considerable attention on your side of the Atlantic as well as here. The victim is, I believe, being slowly done to death in prison.

1. What is the probable amount of a fatal dose of arsenic in the case of a man of fifty who had often taken arsenic medicinally in considerable quantities?

2. Dr. Stevenson found 0.073 grain of white arsenic in 12 ounces of the liver, the weight of which was estimated at 48 ounces. He found 0.015 grain in 8 ounces of the intestines. In some other parts of the body he found traces too small to be weighed. Was he justified in concluding from these data that the body at the time of death contained "probably" or "nearly" (the latter word is Dr. Carter's) a fatal dose of arsenic? How much arsenic, in the opinion of your able correspondents, did it contain at the time of death? (Mr. Davies found less than Dr. Stevenson.)

3. Is there any ground for the allegation of the judge and of the leading counsel for the prosecution that the arsenic which kills is not that which remains in the system, but that which is eliminated from it? And, if so, is there any difference in this respect between elimination by vomiting and otherwise? (In Mr. Maybrick's case there was a good deal of vomiting and very little diarrhoea. The judge made no distinction between the different modes of elimination. I can find nothing in the medical evidence to justify his statement to the jury.)

4. If a person has taken a fatal dose of arsenic, would his symptoms be alleviated by administering a small quantity of arsenic, as Dr. Humphreys swore they were in the case of Mr. Maybrick?

5. Dr. Humphreys ascribed the long-continued vomiting to a morphia suppository which he administered to the patient. Is morphia known to have had this effect in other cases?

A TRANSATLANTIC BARRISTER.

Proceedings of Societies.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

Held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 5, 6, 7, and 8, 1893.

(Continued from page 333.)

SECTION IN GENERAL MEDICINE.

The President, Dr. VICTOR C. VAUGHAN, of Ann Arbor, Mich., in the Chair.

The Principles of Immunity and Cure in the Infectious Diseases.—The PRESIDENT opened the section by reading a paper with this title. After reviewing the history of the work done, and the advances made by recent experimenters, the speaker detailed his method of procuring and preparing immunizing materials. These fluids, which were exhibited to the section, had been obtained from various organs of the body, and possessed varying degrees of germicidal properties. There seemed to be no doubt that the nuclein-forming organs of the body were mostly concerned in the production of immunity. The nuclein formed by these cells, or in the organs, passed into the blood partly in solution and partly in the form of multinuclear white corpuscles, the so-called phagocytes. The speaker did not want to commit himself to the theory that the entire cell broke down. He referred simply to the fact, and he believed it to be a fact, since he had found nuclein in solution in blood serum, that the nuclein passed from the cell into solution. Whether this process was due to the breaking down of the cell or to an active secretion on the part of the cell he was unable to say. The action of the soluble or alkaline nuclein on germs might be either inhibitory or directly toxic, or both. It was not necessary that the invading germ be killed in order to prevent its producing disease. There must be three factors in the production of immunity in an animal naturally susceptible. First, there must be an inhibiting or immunizing substance introduced into the body. Secondly, the organs whose activity was stimulated by those immunizing agents were those which elaborated nuclein, such as the spleen, the thyroid gland, and bone marrow. Thirdly, the antidotal substances were a form of nuclein. The kind and amount of nuclein found would depend upon the nature of the inciting agent and the condition of the organ or organs acted upon. The word nuclein was used in the broad sense, including the nucleins, nuclein acids, and nuclealbumins. An organ which had been once stimulated by a given excitant responded more quickly the second time to the same excitant, provided the interval of time was not too great. This explained the gradual loss of immunity. Now that we had learned that the animal body itself generated a germicide more powerful than corrosive sublimate, and since we knew how to increase this substance in the blood, and could isolate it and inject it into other animals, renewed hope had come to workers in this direction. The advantage of nuclein therapy over blood-serum therapy was in the fact that it might enable employment of the active substance to be made in larger doses. If it was possible to kill the germs or destroy the bacterial poison after the development of an infectious disease by the introduction of a germicide or a toxicide formed by other cells than those of the infected person, then we might expect that cures for these diseases might be found in the near future.

Forms of Malaria and their Characteristic Features.

Dr. F. A. RISQUEZ, of Caracas, Venezuela, read a paper with this title. The speaker confined himself to the description of malarial diseases as found in his country. He classified them as

follows: Of the intermittent forms, they were generally quotidian, occasionally tertian, and very rarely quartan. The continued forms included the varieties of bilious and icterohæmaturic. Of the pernicious forms, there were the pernicious proper and the complicated. The periodic and continued varieties belonged to the larvate forms. While the paper was largely historical, there were some very good points made in the matter of diagnosis. The forms of the first group were easily recognized by the feature of the paroxysm and by the periodic element. When the attack was prolonged the diagnosis might be difficult. The forms of the second group were distinguished by the gastro-hepatic symptoms and the indications of the urine. They might be confounded with other diseases, especially yellow fever. The third variety was recognized by the pre-existence of malarial paroxysms. It might become almost impossible, however, to distinguish between cholera, pneumonia, or tetanus and cases of choleric form, dysenteric, and pernicious fevers. The forms of the fourth group presented still greater difficulties, especially in the continued varieties. They might assume all the appearances of typhoid fever, of cholera, of dysentery, of paralysis, or of hæmorrhage. The malarial cachexia might simulate tuberculosis, hepatic abscess, etc. In all these conditions an early diagnosis was indispensable, because they required the fearless administration of quinine, and this drug might be contraindicated in the non-paludal diseases. There was but one unquestionable means of diagnosis, and that was the microscopic examination of the blood. As all malarial manifestations were accompanied by melanæmia, and melanæmia presented itself exclusively in malarial disease, the sign was therefore pathognomonic, and every suspected case should be examined. A drop of malarial blood under the microscope showed the masses of black pigment in the plasma. The manipulation required no special technique; any one with average ability could make the test. The blood was usually taken from the end of the finger, and required no staining; it was simply placed on a slide and examined with a power of from two to four hundred diameters. The number and size of the pigment masses were proportional to the degree of malarial poisoning. Whenever they were found the indications were for the administration of quinine. Pigment had been found in all forms of malarial disease; where it had been seen in other diseases it was only an evidence of malarial complication.

Dr. DAVID CERNA, of Galveston, Texas, was very sorry that so large a majority of the listeners had not been able to appreciate the importance and completeness of Dr. Risquez's paper, for he had read it in Spanish. Dr. Cerna was pleased to find so easy a method of accurately deciding whether a given case was malarial or not, as there were many conditions which masked the disease. Of course, if the Laveran micro-organism was found in the blood the diagnosis was undoubted, but it was not every practitioner that was prepared or able to do expert microscopic work. He believed, with Dr. Risquez, that the symptom of melanæmia was pathognomonic of malarial intoxication. This had been confirmed in numerous examinations of the blood, both in cases where the symptoms were not typical and in cases of obscure origin but of undoubted malarial poisoning. In regard to the use of quinine in malarial diseases, the speaker was not sure that it was always the proper drug to use. Because it had sometimes failed to benefit patients supposed to be suffering from malarial disease was, however, no sign that there had been a mistake in diagnosis. Even in cases where the hæmatozoa were found quinine had been known to do harm. As a general thing, if the case was not too chronic and the poisoning too great, and provided the pigment was found, quinine was the proper drug to administer. It had been observed that qui-

nine did not destroy the concentric bodies (hæmatozoa), in fact had no effect upon them. Under these circumstances were we to believe that these micro-organisms were really the cause of malarial disease? The speaker had had excellent results with a new drug, phenocol, in the treatment of obstinate cases of malarial poisoning in which every other remedy had failed.

Dr. T. B. GREENLY, of Kentucky, thought that the word "malaria" as a general term was a misnomer, as there were so many factors at work to produce the class of cases that went under that name, and also that strictly antimalarial remedies in their treatment were valueless. He had seen cases of undoubted malarial poisoning that could not be treated with quinine, but by the combination of chloride of ammonium he was able to avoid the congestion produced by the drug alone. In Kentucky there was a type of fever to which the term typho-malarial was applied. It was most prevalent during the time of the year when malarial fevers were common. It occurred at no other time, and was distinguishable by the character of the pulse, which had no ratio to the temperature. Where the temperature was found to be high the pulse was slow, and sometimes slower than normal, while in remittent fever the pulse was very rapid.

Dr. H. A. WEST, of Galveston, Texas, thought that the point of greatest interest was that of diagnosis between the various fevers. He regarded the presence of the pigment in the blood as important, in that it stamped at once the class of case one had to deal with, and no time was lost in the matter of treatment. He considered that pigment as a means of diagnosis was much more important than the hæmatozoa, because it was so much easier of discovery. As to the cause of the pigment in the blood, it was thought to be due to the destruction of the corpuscles and not due to the malarial poison. The speaker thought that these masses of pigment could exist in typhoid fever and yellow fever. He had made it a practice to examine the blood in every case of fever that came under his care, and he had found pigmentary masses coincidently with other diseases. It was not to be understood that he had found these conditions to exist in the blood unless malarial disease really was present. In regard to Dr. Cerna's statement that in some cases of malaria quinine was valueless as a remedy, the speaker thought that an explanation could be found in the fact that in some cases of malarial poisoning the disorganization had been so great that the quinine had nothing left to act upon.

Dr. Risquez wanted to emphasize the principal points brought out by his paper: 1. That the presence of pigment in the blood pointed conclusively to malaria. 2. That he had examined cases of yellow fever and typhus fever during epidemics, and had been unable to find even a trace of pigment. 3. That in some isolated cases of yellow fever he had found pigment which seemed to point to a hybrid disease. If, after finding the real pigmentary masses, further proof was needed of their genuineness, the addition of dilute sulphuric acid would settle the question. The author used the mineral acids as reagents in his examinations, and said that if the pigment was not dissolved they were malarial.

(To be continued.)

SECTION IN DISEASES OF THE MIND AND NERVOUS SYSTEM.

The President, Dr. C. H. HUGHES, of St. Louis, in the Chair.

The President's Address.—Before proceeding to the scientific work the president called attention to the modern advances of neurology, and referred especially to the contributions of neurologists to general medicine. He spoke at length regarding the brilliant achievements of American physicians in this special field, and gave a brief historical outline of the work accomplished during the present century. He said that America

bred and developed neurologists as the water bred and developed fishes. The tabulum neurology fed on was in the American people—their hustling, rushing habits, their business, professional, social, and political environment, and the numerous newspapers they read every morning before breakfast and every night before they forgot to say their prayers—this moral, political, social, and business atmosphere of ambition and bustle tended to develop the strongly endowed, neurologically and psychologically, as it tended in the weakly endowed to the development of neuropathic conditions. It developed neurologists and psychologists to care for the neuropaths. It built and it broke the nervous system. It could not yet be said that we were a neuropathic people, though we were tending that way; but neurology was advancing with equal pace with neuropathic break-down, and would, it was hoped, ultimately enlighten and save the people from their neuropathic sins.

An Address in Spanish was then delivered by Dr. WILLIAM A. HAMMOND, of Washington, and it was responded to by Dr. Manuel Carmona y Valle, of the City of Mexico.

Cerebral Spastic Paralysis in the Adult.—Dr. CARMONA, of Mexico, read a paper with this title.

The Prognosis of Railway Spine.—Dr. F. X. DERCUM, of Philadelphia, read a paper with this title. He described briefly a case in which a blow on the back had been followed by the usual symptoms of painful back associated with neurasthenia and hysterical symptoms. The case was considered as a typical one of "railway spine," so called, without the element of litigation. It was therefore considered as a suitable case in which to test the possibilities of the rest-cure, which might perhaps enable one to answer the question so often asked of the medical witness in court: "Will the patient recover, and if so, how long a time will it require?" After five months and a half of treatment in a special hospital an almost complete recovery had ensued.

Dr. BROWER, of Chicago, expressed the view that the paper possessed many valuable suggestions as to diagnosis. The cases seen by him in Chicago had seemed to be of a different character, and had not presented so many objective symptoms. The manifestations in Dr. Dercum's case had undoubtedly been the result of either neuritis or meningitis.

Dr. FULLER, of Grand Rapids, had treated a case with similar symptoms by puncturing the spinal membranes and removing some of the accumulated fluid. The operation had been successfully repeated several times.

Dr. DERCUM said he thought the muscles and ligaments suffered most, and that the psychical symptoms indicated neurasthenia.

The Treatment of Cerebral Hæmorrhage.—Dr. D. R. BROWER, of Chicago, read a paper with this title. He spoke of the various methods of treatment with the view of controlling arterial tension and diminishing arterial degeneration. He also referred to the beneficial administration of strychnine and the favorable result from the application of the galvanic current to the brain for the relief of the hemiplegia.

Dr. H. A. HARE, of Philadelphia, did not believe that the galvanic current acted directly upon the brain structure, but might hasten absorption in a reflex manner. He was of the opinion that the current, as applied to the head with moistened electrodes, did not pass through the brain at all, but merely sought the path of least resistance, and therefore only traversed the scalp.

Dr. CARMONA, of Mexico, considered electricity of no value when secondary degeneration had occurred.

Dr. ROQUE MACONZET, of Mexico, was of the same opinion.

Dr. W. M. LESZYNSKY, of New York, said that the subject was of the greatest importance to the general practitioner, and it

required a comprehensive knowledge of general medicine to manage this class of patients. He thought that such a complication as ankylosis of the shoulder joint was generally avoidable in hemiplegics if passive motion was begun early and persisted in. Strychnine was of value only as a tonic, and did not improve the paralysis. He had never noticed any beneficial effect that could be attributed to the use of galvanism applied to the head.

Dr. DERCUM was opposed to the use of strychnine on account of the probability of hastening contracture. He agreed with Dr. Hare in reference to the use of electricity.

The President thought that galvanism did not always produce its direct action on the brain, but it was not impossible for the current to pass directly through the brain in the living body.

Dr. A. D. ROCKWELL, of New York, believed that the symptoms produced seemed to indicate that the current acted directly on the brain.

Organic and Mental Co-ordination.—Dr. WILLIAM FULLER, of Grand Rapids, read a paper with this title. His intention was to point out the relations existing between the nutritive conditions of the organs of the body and the mental feelings related to the individual organs, which were co-ordinated not only in their nutrition from the blood, but also by nervous connections so as to produce a frame of mind which corresponded to the general nutritive condition of the organs of the body as a whole. The practical conclusion was that the mind might be influenced by alterations of the physical processes and that the nutrition of the body was influenced by the mental states of emotion and belief. Illustrations were given in support of the theory advanced. In the author's opinion the cerebellum was the brain of the organic nervous system, and though it was not the seat of the emotions, which were conscious feelings and properly belonged to the cerebrum, yet those feelings were produced by cerebellar states.

Dr. BROWER said that it was to be regretted that Dr. Fuller had not given reasons for assigning functions to the cerebellum which had been attributed to it and discarded many years ago.

Should Inebriates be punished by Death for Crimes committed while Intoxicated?—This paper was read by Dr. T. D. CROTHERS, of Hartford, with the following conclusions:

1. The legal treatment of insanity has changed in obedience to a more accurate knowledge of the brain and its diseases.
2. The legal treatment of inebriety is unchanged to-day. Although it occupies two thirds of the time of the courts, all teachings of science and a larger knowledge of the inebriate and his malady are ignored.
3. The ruinous error of punishment by fines and imprisonment of inebriety and petty crimes associated with it, which notoriously increases and perpetuates inebriates and criminals, is a fact demonstrable in every community.
4. Thus public opinion, through mediæval theories and laws, is training and preparing a class of inebriates who first commit petty, then capital crime, with a certainty that can almost be predicted.
5. The death penalty for such crime utterly fails for the same reason. The execution of any number of this class simply opens the door for an army already prepared and trained to take their places.
6. From a scientific study of these persons, it is clearly apparent that they are diseased and incapacitated to act sanely. Alcohol has palsied the brain and made them madmen. The very fact of continuous use of alcohol is evidence of mental impairment and unreasoning act and thought.
7. To hold such men accountable for their acts and by pun-

ishment expect to deter them from further crime, and by such punishment check others from similar crime, is an error which both scientific teaching and experience point out.

8. The object of the State, through the law, is to protect society and the individual; but if the execution of the law-breaker fails to accomplish this end, the laws are wrong.

9. The unfounded fear that the plea of insanity in crime, and the failure to punish, encourage further crime, is flatly contradicted by statistics.

10. Among the mentally defective, the insane, and inebriates, the death penalty is followed by an increase rather than a diminution of crime.

11. The inebriate should never be hung for crime committed while under the influence of alcohol.

12. This method of punishment is never deterrent, but furnishes an attraction for other inebriates, who commit similar crime in the same way, following some law of mental contagion.

13. The inebriate murderer should be confined for the rest of his life in a military workhouse hospital. He should be under the care of others, as incapacitated to enjoy liberty and incompetent to direct his thoughts or acts.

14. A change of public sentiment and law is demanded, and a readjustment of theory and practice called for. The criminal inebriate occupies a very large space among the armies of the defective who threaten society to-day, and his care and treatment must be based on accurate knowledge, not theory.

15. Inebriate murderers should never be placed on public trial, where the details of the crime are made prominent or the farcical questions of sanity are publicly tested. They should be made the subject of private inquiry, and placed quietly in a workhouse hospital, buried away from all knowledge or observation of the world.

16. The contagion of the crime and punishment would be avoided, and the inebriate's services might repair some of the losses to society and the world.

A New Process for Extracting the Essential Principles of Certain Animal Organs, and on their Physiologic and Therapeutic Properties.—This was the title of a paper read by Dr. W. A. HAMMOND, of Washington. It was possible, by the process described, he said, to obtain from the tissues of the various organs of the body—such as the brain, the heart, the spinal cord, the testes, the ovaries, the muscles, and the thyroid gland—substances which were possessed of powerful physiological and therapeutical properties. There was much evidence to show that the active principle of each of these animal extracts acted by preference on that organ of the body which was analogous to that from which it had been derived. Thus "cerebrine" particularly affected the brain; "medulline," the spinal cord; "cardine," the heart; "testine," the sexual system of men; "ovarine," the sexual system of women; "musculine," the muscles; "thyreoidine," the thyroid gland, etc.—and this not only physiologically, but to some extent, at least, in suitable cases, therapeutically. It had not yet been determined whether the active principle (or principles, for there might be more than one agent in each) existed primarily in the organs acted upon by the menstruum, or was a secondary product of the nature of leucemine. They all acted, in the first place, as disturbers of the vaso-motor system, some of them producing a paralyzing and others a spastic effect. And it was not the case that this effect was the same in all instances with the same extract. Thus "cerebrine," although generally causing a sensation of fullness in the head, slight headache, flushing of the face, suffusion of the eyes, etc., sometimes produced paleness, slight vertigo, and a sensation of faintness. This variability was apparently due to the size of

the dose, the state of the system at the time of administration, or the nature of the disease for which the extract was given. In these respects there was an analogy with the action of other substances used as medicines and with that of certain remedial agents other than drugs. Among the first named were opium and its active principles, quinine, cocaine, alcohol, etc.; among the latter, electricity, heat and cold, massage, exercise, etc. In the use of these extracts, as well as in the employment of every therapeutical agent, it was necessary for the physician to familiarize himself as thoroughly as possible with the constitution, habits, and inherent proclivities of his patients. No ill effects, general or local, had ever, in the author's experience, followed on the administration of any of these animal extracts, whether they had been given hypodermically or by the mouth. The dose was so small that when taken upon the tongue it could not be swallowed, but was absorbed rapidly from the mucous membrane of the mouth. Finally, while it was too soon to draw definite conclusions relative to the effects of these extracts in curing organic diseases, there was abundant evidence to show that they exerted a beneficial influence in such affections and that they were rapidly curative of many so-called functional disturbances. This was especially the case in regard to "cardine" in certain cardiac disturbances, "cerebrine" in nervous weakness (neurasthenia), and "testine" and "ovarine" in aberrations of the sexual system in men and women respectively.

The PRESIDENT looked forward to great possibilities from the employment of animal extracts. He thought we were in danger of falling into the same attitude of skepticism in this matter as had been shown toward Jenner, Morse, and Cyrus Field.

The Symptoms and Treatment of Partial Epilepsy was the title of a paper read by Dr. ROQUE MACONZET, of the City of Mexico. His method of treatment was governed entirely by the cause of the disease. He believed that antisypilitic medication was often useless and that surgical interference was frequently necessary.

Dr. A. B. RICHARDSON, of Columbus, Ohio, expressed the opinion that the treatment advised by Dr. Maconzet was the only rational and accepted method.

Dr. BROWER, of Chicago, considered an operation alone insufficient to establish a cure; it merely served as an adjunct to constitutional treatment.

Dr. DEECUM, of Philadelphia, said these operations had been performed frequently in his city with much benefit, but without absolute cure. In the main he agreed with the previous speaker.

Erotopathy; Morbid Erotism.—The PRESIDENT read a paper with this title, and formulated the following conclusions:

1. Morbid erotism presents both normal and abnormal psychological aspects. It therefore presents a voluntary deviation from the ordinary and natural indulgence of the genesis instinct—the normal but immoral psychology of the eroto-sexual propensity, and instinctive, inherent, organic, dominant, and often resistless involuntary perversions of this passion, the latter being the true abnormal and organically unnatural sexual perversion, the reverse or contrary sexual instinct. This is the psychiatric aspect of the subject, the one that most concerns us as alienists and neurologists.

2. Love and the genesis sense are not one, as is shown in the antedating of love by the appearance of the sexual feeling, in the developmental period up to puberty, and its survival beyond the menstrual climacteric in women. In the organic evolution of the individual love antedates the birth and survives the decay of the sexual feeling, though it is intensified, or diminished, or otherwise modified or influenced by sexual states.

3. The duty of the hour is to search out the complicating neurological and neuropathic factors and the predetermining neuropathic conditions, the neurology, immediate and ancestral, of these unique morbid and unnatural eroto-genetic perversions; to weigh in conjunction the potentialities of physical or psychical environment, and determine as satisfactorily as we may, in the light of clinical and historic facts and physiological and pathological states, the true mental status of the eroto-sexual pervers.

4. This inquiry involves a study of hystero-erotic attachments and aversions, erotic trances, ecstasies, beatitudes, divine amours, immaculate conceptions, etc., as well as the true *contrare Sexualempfindung*, or psychopathia sexualis. It involves also certain morbid erotic perversions sometimes observed in epileptically insane women, such as vaginal mutilation with glass, pins, and needles *inter vaginam*, etc., epileptic and neurasthenic exhibitions, etc. We include all under erotopathia.

In every study of morbid erotism, he said, the distinction between love and lust should be sharply drawn, as between healthy erotism and perverted or debased sexual passion. This was necessary to a proper understanding of those historical and every-day recorded instances of pure but perverted Platonic affection and those oft-recurring and startling reversions of sexual love into murderous hate and passion, so often chronicled in the public press. While Science should cast the mantle of charity over morbid impulsions yielded to in resistless psychopathic states, it must draw the line between similar impulsions (depraved and but slightly, if at all, morbid) cultivated and gratified in normal psychical conditions. It must separate disease from depravity of mind, and herein lay the difficulty of his subject. The question of crime and insanity, often difficult to solve, devolved upon us as medico-jurists to determine from known and yet to be acquired psychologic and psychiatric data. The subject was primarily neither one of sentiment nor one of morals exclusively, but mainly one of psychiatry, to the study of which the data of alienism and psychology should be rigidly applied in all questions of medical, moral, and forensic inquiry.

Dr. CROTHERS, of Hartford, said that with such an array of symptoms, in his opinion, it was impossible to consider such persons other than insane.

Dr. J. K. KING, of Watkins, N. Y., thought there was great difficulty in determining where moral depravity ended and insanity began. He cited illustrative cases and concluded that all the subjects could not be classified as insane.

Dr. MACONZET, of Mexico, expressed the view that erotopathia might be produced by either peripheral or centric causes. He had seen several cases in women. Some had been occasioned by disorders of the genital apparatus, while in others no physical abnormality had been found.

The Treatment of Nervous Diseases in Sanitariums.—This was the title of a paper by Dr. J. K. KING, of Watkins, N. Y. He said there was great danger at the present day of specialties being too much divorced from each other. He made a plea for their closer union and more harmony in treatment. This was best accomplished, especially in chronic nervous diseases, in medical institutions. The various requisites necessary to make a sanitarium more than a sanitary resort and to make it worthy of the confidence of the medical profession existed in the varied methods of treatment and the advantage of constant supervision. He also discussed the great advantage of occupation, regularity of life, and healthful surroundings in addition to systematic treatment.

Diseases of the Gangliated Nerves was the title of a paper read by Dr. CHARLES K. MILLS, of Philadelphia. He first referred to certain erroneous views as to the gangliated nerves. Even to the present day fanciful views regarding the so-called

sympathetic nervous system were held by the profession at large, which was in part his reason for presenting this paper to the section. The name "sympathetic" had had much to do with perpetuating these errors. He argued that the ganglia of the gangliated nerves constituted lower, local, decentralizing levels of the nervous system. He mentioned the following as the diseases which might be regarded as genuine affections of the gangliated nerves: 1, certain vaso-motor neuroses of the extremities, such as erythromalgia, *digiti mortui* (dead fingers), Raynaud's disease or symmetrical gangrene, angioneurotic oedema, and some forms of acroparesthesia; 2, certain local vaso-motor and trophic affections, such as perforating ulcer of the foot, Morvan's disease in some instances, and various pigmentary and other skin affections; 3, unilateral and localized sweating; 4, some forms of pupillary dilatation; 5, tachycardia and probably other varieties of disorder of heart rhythm; 6, some varieties of changed arterial tension; 7, anasarca from deficient vaso-motor tonus and unassociated with organic disease of the heart or kidneys; 8, some varieties of arthropathy; 9, some varieties of lymphopathy; 10, some forms of isolated and diffused neuritis, such as of the cervical gangliated cord of the great and lesser splanchnics or of the pelvic splanchnics or *nervi erigentes*; 12, some painful sensory disorders not neuritic in character, but which gave rise to mediastinal, pulmonary, abdominal, and pelvic neuralgias; 13, probably various reflex disorders.

The Modern and Humane Treatment of the Morphine Disease.—Dr. J. B. MARTINSON, of Brooklyn, read a paper with this title.

Hypnotism: Does it Menace the Public Weal?—This paper was read by Dr. FRED. C. VALENTINE, of New York. He concluded as follows:

1. The therapeutic possibilities of hypnotism are not denied. A patient who persuades himself, or is persuaded, that he can be cured by the hypnotic influence is as well or better cured than by drugs or appliances that do not appeal to his view of the case.

2. The hypnotic state should never be allowed a status in law or morals. While it is certainly better that a hundred rogues escape than that an innocent being be punished, there is no human mind conceivable that can be induced by hypnotic suggestion to do what its owner knows to be wrong. Those "moral defectives" who can not distinguish right from wrong are proper subjects for the insane asylum.

If these propositions were established, hypnotism would, the author thought, have its status defined and thus would be deprived of all power for evil. It must be clearly understood that no one could be hypnotized without his own full consent and co-operation; consequently any violation of the law of the land or even of an unwritten code of morals while under the alleged "influence" was as punishable as if committed in full, independent possession of the mental faculties. With this view everywhere accepted and established, hypnotism would no longer be a menace to the public weal.

Dr. C. G. COMEY, of Cincinnati, believed that in the hypnotic state there was an abeyance of voluntary power. He thought the condition was allied to the dream-life, and that a man was as irresponsible when in the hypnotic state as he was in his dreams.

Dr. CHARLES K. MILLS, of Philadelphia, said that the reader of the paper had treated the subject in a very illogical manner. He thought it would be unfortunate, both for law and for morals, if hypnotism was made an excuse or defense for crime.

Dr. BROWER agreed with Dr. Mills. In his experience, there were extremely few persons susceptible to the influence of hypnotism. We could no more formulate any law controlling

all cases of alleged hypnotism than we could in regard to all cases of insanity.

Dr. A. B. RICHARDSON, of Columbus, Ohio, regarded hypnotism as of some therapeutic value, but its indiscriminate use was dangerous to society. Public exhibitions of it were a crime against public policy, and its practice should be limited to physicians.

Dr. G. M. HAMMOND, of New York, had found the most susceptible subjects among foreigners. He had discarded the use of hypnotism to a great extent, and had seen only occasional amelioration of symptoms effected by it, but no cure.

Dr. JUAN PADILLA, of Guatemala, thought the writer of the paper had not sufficiently demonstrated the advantages offered by hypnotism, not only as a therapeutic agent, but also as a medium that might in certain judicial cases serve to bring out the truth.

The PRESIDENT said the possibility of hypnotization was a well established fact. It should not be used as a plea in extenuation or defense of crime. It would be important to note the method by which hypnotism was accomplished. He designated it by the term "somnambulism" and defined it as a condition of the absence or subjection or abeyance of the volition due to the induced sleep state.

Dr. VALENTINE said that he had only presented his paper in abstract. He believed, however, that every patient who had been hypnotized had been humbugged. He was of the opinion that ere long hypnotism and works on the subject would be relegated to the galleries of ancient discarded medical curiosities.

The Discrimination between Ordinary Paretic Dementia and Tabes Dorsualis and Syphilitic Cerebral and Spinal Disease simulating the Former.—This was the title of a paper read by Dr. E. C. SPITZKA, of New York. It was discussed by Dr. DEKRUUD and Dr. MILLS, of Philadelphia.

Papers read by Title.—The following papers were read by title: The Curability of Inebriety, by Dr. J. G. Reed, of Elmwood Place, Ohio; The Traumatic Psycho-neurosis: its Relations to Paranoia, Epilepsy, and Paretic Dementia, by Dr. J. G. Kiernan, of Chicago; Suppurative Meningitis and Myelitis, with Exhibition of Specimens, by Dr. Graeme M. Hammond, of New York; Chorea, by Dr. Charles H. Brown, of New York; A Study of the Temperature in Twenty-five Cases of General Paralysis of the Insane, and The Present Status of Infantile Cerebral Palsies, by Dr. Frederick Peterson, of New York; The Successful Management of Inebriety without Secrecy in Therapeutics, by Dr. C. H. Hughes, of St. Louis; The Medical Treatment of Insanity, by Dr. Edward C. Mann, of Brooklyn; Where the New-born Baby learned to Suck, by Dr. C. A. F. Lindorme, of Atlanta; The Influence of Alcohol upon the Human Powers and Constitution, by Dr. T. L. Wright, of Bellefontaine, Ohio; The Disease of Inebriety and its Treatment, by Dr. T. D. Crothers, of Hartford; Neuro-angiolysis and its Relations to Paretic Dementia, by Dr. Frank C. Hoyt, of Clarinda, Iowa; Civil Service in American Hospitals for the Insane, by Dr. S. V. Clevenger, of Chicago; La Renguera, by Dr. Daniel Guterrez y Arango, of Colombia; The Nervous Symptoms of Storms, by Dr. Curran Pope, of Louisville; A Peculiar Type of Vaso-motor Neurasthenia (the Pulsating Disease), with Report of and Operation for the Same, by Dr. Charles L. Dana, of New York; Nutrition against Stimulation, by Dr. W. H. Maxon, of St. Louis; The Study of Criminal Anthropology and Social Reform, by Dr. Abundio Aceves, of Guadalajara, Mexico; Expert and Opinion Evidence, by Clark Bell, Esq., of New York; and On the Judicial Recognition of Irresponsibility in Alcoholic Mental Disease, by Dr. Norman Kerr, of Great Britain.

Book Notices.

Sciatica. A Record of Clinical Observations on the Causes, Nature, and Treatment of Sixty-eight Cases. By A. SYMONS ECCLES, M. B. Aberd., Member Royal College of Surgeons, England, etc. London: Macmillan & Co., 1893. Pp. viii-88.

The author frankly states in his preface that his *opusculum* has no claim to novelty, either in the views that it expresses about the nature of sciatica or in the methods advocated for its relief. There is an exposition of the usually accepted views on the aetiology, pathology, symptoms, and treatment of sciatica, with commentaries on the author's experience with sixty-eight patients affected with this disease.

Reactions. A Selection of Organic Chemical Preparations Important to Pharmacy in regard to their Behavior to Commonly-used Reagents. By F. A. FLÜCKIGER, Ph. D., M. D. Translated, revised, and enlarged by J. B. NAGELVOORT, Analytical Chemist, etc. Authorized English Edition. Detroit: George S. Davis, 1893. Pp. x-154.

Dr. FLÜCKIGER's work describes the methods of obtaining the reactions of the more important organic substances that are used in pharmacy, and this particular edition has the advantage of the addition of the translator's experience.

BOOKS, ETC., RECEIVED.

The Throat and Nose, and their Diseases. With One Hundred and Twenty Illustrations in Color, and Two Hundred and Thirty-five Engravings, designed and executed by the Author, Lennox Browne, F. R. C. S. E., Senior Surgeon to the Central London Throat and Ear Hospital. Fourth Edition. Philadelphia: Lea Brothers & Co., 1893. Pp. xx-734.

A Manual of Medical Treatment or Clinical Therapeutics. By I. Burney Yeo, M. D., F. R. C. P., Professor of Clinical Therapeutics in King's College, London, etc. With Illustrations. Vol. I. Pp. xiii-631. Vol. II. Pp. vi-744. Philadelphia: Lea Brothers & Co., 1893.

The Art of Preserving Health. Outlines of Practical Hygiene adapted to American Conditions. By C. Gilman Currier, M. D., Visiting Physician to the New York City Hospitals, etc. New York: E. B. Treat, 1893. Pp. v-468.

A Manual for Boards of Health and Health Officers. By Lewis Balch, M. D., Ph. D., Secretary State Board of Health of New York. Albany: Banks & Brothers, 1893. Pp. 4-5 to 242.

Therapeutics of Cholera (Cholera Asiatica). By P. C. Majumdar, M. D., Graduate of Medical College, Calcutta, India. Philadelphia: Boericke & Tafel, 1893. Pp. iv-5 to 102.

Die Beziehungen des Sehorgans und seiner Erkrankungen zu den übrigen Krankheiten des Körpers und seiner Organe. Von Dr. Max Knies, Professor e. o. an der Universität Freiburg i. B. Zugleich Ergänzungsbuch für jedes Hand- und Lehrbuch der inneren Medizin und der Augenheilkunde. Mit 21 Figuren im Texte. Wiesbaden: J. F. Bergmann, 1893. Pp. xi-484. [Preis, 9 Marks.]

Transactions of the Medical Society of the State of Pennsylvania at its Forty-third Annual Session, held at Williamsport, 1893. Volume XXIV. Published by the Society.

The Successful Treatment of Typhoid Fever. A Reply to Dr. Page. By Charles Milton Buchanan, M. D., Washington, D. C. [Reprinted from the *Medical Brief*.]

A Study of the Aetiology of Asiatic Cholera, with Suggested Treatment. By M. J. Crouch, M. D., Union, Ky. [Reprinted from the Cincinnati *Lancet-Clinic*.]

Insomnia. By Curran Pope, M.D., Louisville, Ky. [Reprinted from the *American Medico-surgical Bulletin*.]

Suppurative Appendicitis. By L. H. Laidley, M.D., St. Louis, Mo. [Reprinted from the *Journal of the American Medical Association*.]

Experiences in Pelvic Surgery. By A. V. L. Brokaw, M.D., St. Louis, Mo. [Reprinted from the *Transactions of the Southern Surgical and Gynecological Association*.]

Peritonitis from a Surgical Standpoint. By A. V. L. Brokaw, M.D., St. Louis, Mo. [Reprinted from the *Medical Fortnightly*.]

A Synopsis of Clinical Surgery during the Service of Samuel H. Pinkerton, M.D., Surgeon to the Holy Cross Hospital. By Franklin A. Meacham, A.B., M.D., Assistant Surgeon to the Holy Cross Hospital, Salt Lake City, Utah. For the Year 1892.

Suturing the Tendo Achillis in the Correction of Deformities of the Feet. By H. Augustus Wilson, M.D., Philadelphia. [Reprinted from the *International Medical Magazine*.]

A Practical System of Studying the German Language. For Physicians and Medical Students. For Self-instruction. A Modern Simple and Practical Method, enabling Physicians and Medical Students to acquire in a very Short Time and with comparatively but Little Effort, the "Medical" as well as Common "Conversational" German Language. By Albert Pick, M.D. Part II. Newtonville, Mass.: E. S. Tanner.

New Inventions, etc.

AN IRRIGATING TUBE.

By T. J. SHUELL, M.D.,
PARNELL, IOWA.

THE accompanying cut shows the irrigating tube referred to in my article on the treatment of typhoid fever, which appeared

in the issue of the *Journal* of September 2d. It is here shown attached to a fountain syringe, the manner in which I use it. It consists of a tube of medium soft rubber, very smooth, the distal end polished, about three feet in length, and from a half to five eighths of an inch in diameter—25 to 32, American scale (36 to 48, French scale). Tubes of this caliber, I find, will more readily pass the sigmoid flexure than those of a smaller caliber. For children, tubes of 10 to 16, American scale, and about eighteen to

twenty-four inches in length, are suitable.

The tubes of this kind, manufactured by Tiemann & Co., of New York, are admirably adapted, because they are very smooth and have about the right amount of stiffness. I feel

assured that the treatment of all intestinal diseases due to ptomaine poisoning may be made more successful by the irrigation method.

Miscellany.

The Neuroses of the Menopause.—Dr. Gustavus Eliot, of New Haven, whose published writings are all readable and instructive, contributes to the September number of the *American Journal of the Medical Sciences* an article entitled *The Disorders of the Nervous System associated with the Change of Life*. After mentioning women's habitual disregard of their health in their earlier life and the frequency of occurrences calculated to beget emotional disturbances between the fortieth and fiftieth years of age, he says:

"If you inquire carefully in regard to the clinical history of one of these patients, you will find that she suffers from more or less of the following symptoms: Indisposition for exertion, inability to work, forgetfulness, headache, dizziness, insomnia, flushes of heat followed by chilly sensations, sweating, palpitation, flatulence, abdominal distention, and constipation. On making further examination you will probably find that her heart and lungs show no evidence of any organic lesion, and that her flesh is flabby, her pulse soft, her tongue coated, and the conjunctivæ are pale. She may have considerable intercostal neuralgia and frequent backaches, and tender spots may be detected in her head, back, and chest. She also sometimes complains of swelling of the face, hands, and feet, which, however, is often not a real oedema.

"A study of the clinical history of these cases, and a consideration of the inconstant and changeable character of the symptoms, is sufficient to convince one that they are not of organic origin; that they are not associated with any distinct pathological change in the nervous system, but that, on the other hand, they may occur in connection with a variety of different conditions.

"In some cases a disordered digestion is the most important factor in the causation and perpetuation of these very distressing symptoms. The chief disturbance may be in the stomach. The eructations of gas and flatulent distention of the stomach are frequently the most annoying and most important symptoms. Or, on the other hand, the intestines and the associated glands may be chiefly at fault, and the most marked symptoms obstinate constipation and flatulent distention of the abdomen. Not infrequently these two conditions are found coexisting in the same case. They may then give rise to or be associated with a number of other symptoms, the most common of which are headache, dizziness, palpitation, and dyspnoea.

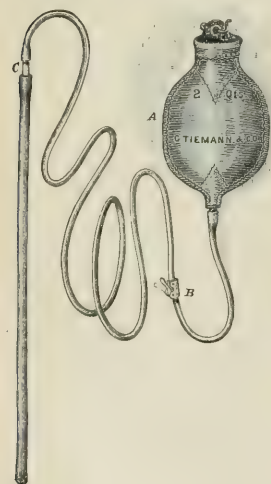
"In some cases anæmia is an important element. This may be associated with disturbances of digestion, either as cause or effect. If both exist, each may intensify and aggravate the other. If anæmia is present, the patient usually complains of headache, dizziness, and dyspnoea.

"In other cases insomnia is a prominent feature. This also may be a result of pre-existing derangements of function of various organs, and in turn, when present, may aggravate other disorders.

"Finally, in many cases there is a distinct and well-marked element of nervous exhaustion. This is frequently the starting point of other disorders, and when they are fairly established is intensified by them.

"In making the diagnosis of this condition one should be very careful to exclude the possibility of the existence of any organic disease. In many cases organic diseases are accompanied by symptoms which resemble those which have been described as of frequent occurrence in connection with those functional disorders of the nervous system which are the subject of this paper.

"Careful exploration must be made of the chest—of the lungs, but more particularly of the heart, to which many patients think that their troubles are referable—in order to detect the possible presence of commencing or latent organic disease. Careful analysis of the urine should be made occasionally, in order that no organic change in the kidneys



may escape notice. The temperature should be taken now and then, especially if the action of the heart is at all accelerated, so that no febrile disturbance may be overlooked. Naturally inquiry should be made as to the manner in which each organ of the body is performing its function, and any deviation from the normal must be carefully noted and duly considered in deciding upon a plan of treatment.

"The prognosis of these disorders is rather uncertain on account of the variety of circumstances which influence their progress. Many patients are exceedingly dilatory in seeking medical advice for these troubles. Many are very negligent about following up the treatment which is prescribed, and some fail to receive proper treatment because their physicians make an erroneous diagnosis, or do not understand what therapeutic measures are adapted to the case.

"The natural tendency of these disorders is to persist for months and years. They do not, however, have any inherent tendency to terminate in death. With proper treatment their severity may be mitigated and their duration very much abbreviated. If the patient seeks advice early, is judiciously managed, and follows up the treatment conscientiously and persistently, the prognosis is good. Care must be exercised to remove, as far as possible, the conditions which permitted the development of the symptoms in the first place, lest they return again after treatment has been discontinued.

"In the management of these cases it is necessary to combine very careful hygienic regimen with appropriate medicinal treatment. Worry and care must be avoided as far as possible. Regular and prolonged rest must be secured. A moderate amount of mental occupation during waking hours is useful. Abundance of fresh air and moderate exercise are essential. Food which can be easily digested and which has been properly prepared must be taken regularly and in sufficient quantity. It must be eaten slowly and chewed thoroughly, and time must be allowed for the process of digestion to become fairly established before the resumption of mental or physical exertion. Tea and coffee must be entirely abandoned, and abundance of milk and water must be taken. Bathing and rubbing influence very favorably the circulation and the processes of nutrition. The body must be properly protected, so as to maintain an equable degree of warmth throughout, care being taken to avoid the extremes of an excess or a deficiency of clothing.

"If the functions of any organ are not properly performed, the treatment must be so directed as to restore and maintain the normal action.

"The digestive organs are perhaps more frequently deranged than any others, and require most careful attention to secure a proper performance of their functions. Constipation, flatulence, and anorexia are the most common and the most important indications for treatment. If constipation exists alone, a pill of aloes and myrrh taken at night, and followed, if necessary, by another in the morning, will generally produce a pleasant effect. Another excellent pill under these circumstances is one containing one fifth grain of aloin and one sixtieth grain of sulphate of strychnine. Two or three of these may be taken at different times through the day, if one at night is not sufficient. The object to be aimed at is to secure one easy movement of the bowels each day, unaccompanied by nausea or griping, by means of small doses, repeated if necessary, of some not very irritating laxative.

"If anorexia, constipation, and flatulence are all present, a bitter mixture will generally prove useful—a combination of nux vomica, cascara sagrada, cardamom, and gentian, with aromatics, is exceedingly valuable under these circumstances.

"If anemia is well marked, iron and arsenic are very useful. If there is no, or only slight, disturbance of the digestion, pills containing sulphate of iron with carbonate of potash, known as Bland's pills, with the addition of arsenous acid, produce excellent results.

"If constipation accompanies anemia, a pill or capsule containing arsenous acid, aloes, nux vomica, and reduced iron may be advantageously prescribed.

"If neuralgia is a prominent symptom, five-drop doses of fluid extract of gelsemium will give relief in many cases. In connection with gelsemium, or in place of it, benefit will often be obtained from the use of sulphate of quinine with extract of hyoscyamus.

"If the nervous symptoms are not accompanied by derangement of

the functions of other organs, or if they persist after proper attention has been paid to the regulation of these disorders, it is necessary to prescribe remedies which act more directly upon the nervous system. The most useful drugs of this class are bromide of sodium, phosphorus and its compounds, nux vomica, and arsenic.

"The use of arsenic has been already mentioned in connection with the management of cases in which anemia is an important factor. In the treatment of certain forms of anemia it is of great value. But besides increasing the production of red blood-cells, it unquestionably possesses the power, also, of promoting the nutrition and vigor of the nervous system. In combination with iron and nux vomica it is exceedingly useful.

"The utility of phosphorus as a nerve tonic has long been recognized. A combination in pill form of one one-hundredth grain of phosphorus with one quarter grain of extract of nux vomica has been used extensively and with excellent effect. One great drawback to its use is the difficulty of securing pills which have been properly made and in which the original characteristics of the drugs have been retained.

"Phosphide of zinc is frequently substituted for phosphorus. One tenth grain of this compound with one fourth grain of extract of nux vomica will often prove of benefit.

"The compound syrup of the hypophosphites is another preparation which is very popular with the profession, and which has positive value as a nerve tonic.

"As a palliative agent, to produce sleep, to equalize the circulation, and to relieve the condition of nervous irritability commonly called nervousness, no drug is more useful than bromide of sodium. This salt is preferable to the other bromides because it is less unpleasant to take, and is less irritating to the stomach, while at the same time it is not inferior in therapeutic value. In prescribing this very valuable drug, one should never forget that it does not increase the strength or nutrition of the nervous system. It should not, therefore, be relied upon for continuous prolonged administration to the exclusion of other remedies. On the contrary, its use should be supplemented by the administration of general tonics and of special nerve tonics. Iron and arsenic are especially well adapted for this purpose.

"In conclusion, the following propositions are presented:

"1. At the time of life when the menopause occurs the various organs of a woman's body are likely to be in a state of depression as regards either their nutrition or functional activity, so that the normal equilibrium of healthy action may be easily disturbed, and abnormal action, the manifestation of disordered function, may be inaugurated and perpetuated.

"2. The cessation of menstruation is an event of great physiological importance, and is perfectly competent to produce grave disturbances of the nervous system, if any predisposition to them already exists.

"3. The more common disorders of the nervous system occurring under these circumstances are functional in character, and are associated with disturbances of functions of other organs, and especially of the digestive, circulatory, and hematopoietic systems.

"4. In their treatment, attention should first be paid to improving the general nutrition of all the tissues of the body, and restoring each organ to its normal activity.

"5. If, after all the other organs have resumed the proper performance of their functions, symptoms referable to a disordered condition of the nervous system still persist, recourse must be had to remedies which act directly upon the nervous system, either by improving its nutrition or by modifying and regulating its action."

A Newspaper Tirade against Medicine.—Nowadays it is rare to encounter such venom and such dense ignorance as are displayed in the following editorial article, entitled *Foes to Progress*, which appeared in the *Saint Paul Daily Globe* for September 10th:

"The recent session of the world's medical congress at Washington, if remarkable for nothing else, was remarkable as a display of the ignorance that exists among physicians of the human system, the ills that afflict it, and the proper remedies for those ailments. Disease was discussed in all its thousand forms, and remedies for some afflictions were suggested, but it is a little singular that in no instance was any remedy for any given disease recommended, save as an experiment.

The doctors were honest enough to admit, tacitly, at least, that they had no specific in the entire materia medica for any given complaint. Some drugs were found to have a specific action in a few instances, but utterly failed of producing the desired results in others. The most that could be done was to advise that physicians experiment with this or that drug. It might cure the patient, but no guarantee was given that it would not kill him. Nothing could more thoroughly explode the notion that medicine is a science than the confessions of the doctors assembled at Washington.

"Of all the so-called learned professions, that of medicine is the least progressive. There exists in the mind of every graduate of a medical college an overpowering dread of innovation. The remedies of a hundred years ago are the remedies of the present time, and the mode of administering them is substantially the same. Innovations are frowned upon by 'the fathers,' and progress is denounced as empiricism. The discoverer of a new remedy is denounced as a quack, and all countenance is withdrawn from him. The physician who tramples upon the traditions of the profession treads upon the corns of every other practitioner, and if he persists in discarding text-books that have grown musty with age, and precedents that were established in a by and forgotten era, he is expelled from association with his fellows. If he makes a discovery of value to suffering humanity, he must use it in secret, for if he thinks to benefit mankind by divulging it, he is confronted by the inexorable fiat of his fellows—the ethics of the profession"—and sooner than suffer ostracism he concludes that it will be wise to join the procession—a procession that never moves, but is rooted in prejudice, bound securely by precedent and tradition, and is scarcely within hailing distance of the present century.

"Meanwhile the march of disease and death is on. Every year new diseases and new complications of old diseases manifest themselves. Remedies are sometimes found, and if they are consistent with the practices of the past they are adopted. If, however, they are repugnant to precedent, the patient dies, for few physicians have the hardihood to apply a new remedy. The cholera, the yellow fever, scarlet fever, and diphtheria have been carrying off thousands of victims every year for generations. They are almost as fatal to-day as at any time in their career, for no remedy has been found and applied. They have been somewhat mitigated in severity by the observance of sanitary and hygienic precautions, but these have not been at the suggestion of the doctors. The grip comes around periodically, and, although tens of thousands have fallen victims, the doctors confess themselves powerless to combat it. Their experiments result in nothing of benefit; their diagnoses differ; their remedies are applied in a haphazard, hit-or-miss manner, and the undertaker gets a job. Scarlet fever is taking on new aspects of late years, caused, doubtless, by changes in the manner of living and in natural conditions. The treatment, however, remains the same—as inflexible as the laws of the Medes and Persians. Diphtheria is growing alarmingly prevalent and fatal. The remedies applied seldom reach the seat of the disease, and the patient only recovers if he is so fortunate as to have an extraordinary constitution.

"And so it goes. Disease strides far faster than those who combat it. Medical colleges increase rapidly, and grind out doctors by the score, each batch less skillful and less progressive than its predecessor. Humanity suffers, but the ethics and traditions of the profession must be maintained."

An esteemed correspondent who sent us this gem says of it that it is evidently a comment on the Pan-American Medical Congress, although the writer calls it the World's Medical Congress, and adds that "one would judge that the writer had failed in introducing some pet patented or proprietary remedy or instrument at the congress, and had 'got it in for' the entire medical profession."

Organic Juices as Remedies.—In the August number of the *Indian Medical Record* there is an editorial article in which, after giving a résumé of recent investigations in the therapeutic employment of organic juices, the writer says:

"It is hard to conceive that these preparations from organs can prove curative in organic lesions. It is quite reasonable to expect that they are *palliative* in their action in such cases; and that in impaired functional activity of organs their effects are permanent and

curative. We can admit, as Dr. Hammond lays down, 'that all the organs of the body possess the power, when in a state of health, of secreting from the blood the peculiar substance that they require for their nutrition, and that they take this substance and no other, never making a mistake in the matter.' These vaunted preparations, then, may supply the functionally deranged organs with their peculiar pabulum, or help to furnish the general economy and organization with whatever these organs, when diseased, are unable to provide it. But even for such functional restoration and such amelioration of distressing conditions in incurable organic ailments that these new preparations from organs evidently effect, the thanks of the profession are due to the experimentalist in this new field of research. We may remark *en passant* that it has been our experience that the liver of the sheep, which forms an ordinary article of food, acts as a mild aperient and increases the biliary secretion if partaken of in quantities of about half a pound in any of the ordinarily made dishes."

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Contributors who wish to order REPRINTS of their articles should do so on a blank prepared for that purpose, which will be sent to them by the publishers on receipt of a request to that effect. The order should be sent to the publishers, and not to the editor.

Original Communications.

SANITARY NOTES AND BEAMS.*

By ALBERT L. GIHON, A. M., M. D.,
MEDICAL DIRECTOR, UNITED STATES NAVY.

"And why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?"—St. Luke, vi, 41, 42.

THESE words of the Teacher of Humanity, which "the beloved physician" of the first century has recorded, are an appropriate text for the opening address in the important session with whose conduct I have been charged in this congress.

Time was—and that no long time—when Hygeia, the neglected Cinderella of the medical family, slunk unnoticed among menials; now that she graces the *salon*, her proud sisters caress her and suitors court her favor. As an old admirer of this fair mistress, whose colors I have worn through youth and manhood, I may be pardoned the personal exultation that I have lived to see her suzeraine.

The ascendancy of hygiene has greatedened and glorified medicine, without dimming the luster of any other branch; but though her cult is established, her mission has not ended with the recognition of her supremacy and the faithful following of her own ilk. To-day she turns to the people and their rulers, outside the medical fold, and demands the place in their councils that is hers of right. A makeshift share in the administration of the sanitary interests of the country has been grudgingly allowed, but the inexorable demands of modern enlightenment can not be satisfied until the conservator of the public health shall sit a peer among the rulers. The minister of war may build mighty engines for destruction and defense and muster vast armies and navies, which disease can disperse with a weapon so tiny that the eye can not discover and no mere military expedient antagonize. The minister of finance may fill his treasure houses with gold and silver by the ton, which can buy human souls honor, virtue, independence, everything but the boon of health, God's free gift to man, through which alone he can be like his own glorious image. Commerce, agriculture, manufacture, fishery, mining, and all the industrial occupations of the human race, which are now the objects of the intelligent supervision of cabinet ministers, who are grand masters of political economy and social science, can not thrive without vigor of human blood and brains and brawn, which are the machinery of these occupations; yet until this decade it has not been thought that the intelligent supervision of a grand master of the divine science of medicine was necessary to preserve this vigorous health of the community, without which even these other ministers can themselves only imperfectly perform their own offices of administration.

When I entered the service of the Government of the

United States as an officer in the Medical Department of the Navy, nearly forty years ago, with a minimum of experience and a maximum of enthusiasm and an exalted opinion of the dignity and responsibility of my charge, which a lifetime has only intensified, I was astounded at the total ignorance of sanitary provision then prevailing in the naval service. Medical officers were curtly reminded that their opinions and advice would be asked when desired; their protests at acts that filled the hospitals and mortuary lists were contemptuously unheeded; they were reproved for officiousness and punished as insubordinate; disabled sailors and marines were discharged and their places and those of the dead were filled without regret or remorse, but with the shameless boast that "if men die we can ship others," like the *Netherland commodore*, some of whose crew had been killed by the careless firing of a shotted saluting gun, who accepted the apology for the accident with the nonchalant remark, "Dere are plenty more Dutchmens in Holland."

The battleships and cruisers of modern navies are not more unlike the brigs and sloops of war of forty years ago than are the cleanly, well-fed, comfortably clad and cared-for enlisted men, who go on shore daily, subscribe for newspapers, and write letters—a different race from the begrimed and degraded "shell-backs," who were ordered to their work with curses and punished with brutality for offenses which neglect and ill-treatment had incited. The naval and military establishments have considered the beam in their own eyes, but civil authorities are still purblind to the necessity for organized intelligent sanitary supervision and direction, and grope for succor only under the flashlight of a pestilential visitation. The following from a recent editorial in an influential journal is pertinent: "Whether cholera has or has not made its appearance at Chester, which is practically one of the suburbs of Philadelphia, it is certain that the conditions reported to exist there are in the highest degree favorable for the introduction and spread of that disease. All accounts represent the neighborhood in which the alleged cases occurred as filthy beyond description and occupied by a class of persons who pay no attention whatever to the laws of health or personal cleanliness. Of course, the country now has the pleasant assurance that the place is to be thoroughly cleaned and effectively quarantined; but why were not the steps necessary for the protection of the public health taken before the resulting disease, whether cholera or not, had gained such a footing that already five persons have died from it? The time to lock the stable door is before the horses housed therein are stolen, and the way to treat contagious diseases is to prevent their appearance and not wait for them to gain a foothold and then try to stamp them out."

The Secretary General has announced that the proceedings of this section and its congener, the Section in Marine Hygiene and Quarantine, will constitute a special feature of this congress. It is therefore incumbent upon us before adjourning to declare very positively the opinion of the members of this section, experienced practical sanitarians.

* The presidential address read before the Section in Hygiene, Climatology, and Demography of the First Pan-American Medical Congress.

rians from every country of the Western Hemisphere, that the interests of the public health must be intrusted to a department of the Government especially charged with their administration, with equal independent executive authority as given to other national departments. Temporalizing legislation under the spur of emergencies does not befit this age. As the enlightened physician seeks to prevent his charges becoming ill, so should the guardian of the public health be able to forestall these emergencies, whose pecuniary cost, in money expended and wasted, in trade paralyzed and diverted, in labor and its wages lost by the sick and terrified and dead, in a single epidemic, exceeds that of maintaining an efficient sanitary service for the whole country for a whole year.

The fault of the medical profession has always been its lack of bold assertion of its rights; but it can no longer hesitate to declare to trade and commerce and agriculture and manufacture that the health and vigor which are essential to prosperity can not be secured by their own unskilled, uninformed efforts. They must learn, as the military services have learned, that powerful armies and navies are the results of able and untrammelled medical departments. It is as unwise to confide the care of the national health to a financier, however astute, as to expect a postmaster general to understandingly control a bureau of agriculture, or a fishery commissioner to best administer the affairs of the public schools, and an attorney general to direct the mining industries. The health of a nation is a national consideration involving international co-operation. There should be no priority nor clash of sectional interests. State lines are not respected by epidemic intruders. No State barrier can be so defensive and impenetrable that the toxiferous germ can not pass through. The precise form of administration may be left to legislation, the indispensable requisites being that it shall be national, that it shall have parity of voice and influence in the national councils, that it shall have independent executive authority under the limitations common to other departments, and that it shall be intrusted to educated and experienced medical men, who alone are competent to assume its responsibilities.*

I have not wandered from my text in thus pleading for a national public health establishment. Spasmodic tentative provisions in emergencies are nothing but attempts to discover *motes* from abroad when the *beams* at home should first receive consideration. To parallel further and in another sense, the scientific tendency of the day is literally toward mote hunting through microscopes instead of using our human eyes upon visible abominations. The sanitarian, official or amateur, need only look about him to be appalled at the spectacle of indifference of rich and poor, high and low, to dangers far greater than any from cholera microbes, which confront them every hour, and it may

be worth our while to indicate some of these beams in our own eyes, which we complacently refuse to see, while we magnify the motes on our horizon.

The preventable disease, which kills more of the human race than cholera and yellow fever together and in its ordinarily slow process of killing, lessens the productive power of a community, directly by the enfeeblement of its victims and indirectly by its demands upon members of households and eleemosynary institutions for the care of these chronic invalids. Tuberculosis is tolerated with as little concern as the Mongolian exhibits for small-pox or the creole for yellow fever and malaria. The consumptive, whose traits no professional acumen is required to recognize, frequents our crowded thoroughfares, sits beside us in unventilated street cars and at the hotel table, occupies Pullman sleeping berths, and shares the steamship stateroom, wholly unrestrained and innocently ignorant that he or she may be sowing the seeds of disease among delicate women and children. Any one may verify this who uses his eyes for the purpose along the railway and coastwise steamer routes to our invalid resorts. Within a twelvemonth, on my way to Mexico by rail, I was fellow-passenger with two invalids in the advanced stage of phthisis, *en route* for San Antonio, one of whom occupied the opposite berth and the other one diagonally across the car, so that I could see and hear them coughing and expectorating, with only such attention as well-intending but unskilled relatives could render. They had no vessels for receiving their sputa, which were discharged in their pocket handkerchiefs to be scattered over pillows, coverlets, and blankets. They left the car in the morning, and I saw those same berths—it is true with change of linen sheets and pillowcases, but with no change of blankets, mattresses, or pillows—occupied that very night by other travelers, who were thus subjected to contact with a pathogenic microbe far more tenacious of life and power of evil-doing than the dreaded cholera spirillum. One has only to sit in a crowded street car on a winter day and watch the clouds of respiratory steam circling from the mouths and nostrils of the unclean and diseased into the mouths and nostrils of the clean and healthy, as the expiratory effort of the one corresponds with the inspiratory act of the other. The road is short but straight and sure from vomica and mucous patch to the receptive nidus in another's body. Who that has ever had forced upon him an aerial feast of cabbage, onions, garlic, alcohol, tobacco, and the gastric effluvia of an old debauchee can doubt that aqueous vapor can transport microscopic germs by the same route? Not long ago I traveled by sea from New York to Charleston, and for two nights was cabin with some twenty consumptives going to Florida. The air was chilly and they huddled around the stoves and fearfully and fearlessly closed doors and windows until the atmosphere became stifling and surcharged with their emanations and the dried sputa, which they ejected on every side. It was comparatively easy to escape during the day by staying on deck, and I slept with my stateroom windows wide open, but the curtains, carpets, pillows, and mattresses had been saturated by I know not how many expectorating predecessors. I have visited fifty small-pox

* These propositions were unanimously adopted in the form of a resolution in these terms by the conjoined Sections in Hygiene, Climatology, and Demography, and in Marine Hygiene and Quarantine, and reported to the general session of the congress, by which it was referred to the International Executive Committee, which returned it with its indorsement and direction that it be transmitted as the voice of the congress to the executives of all the countries represented therein.

cases a day, have gone through yellow-fever wards, and stood by cholera bedsides with far less apprehension than I experienced on that trip, yet it was one taken by many thousands of people, who would have been terrified to know that there had been a case of cholera within a mile to leeward of their homes. Recall in your several experiences the instances of members of a family who have occupied the same chamber and bed with a gentle and beloved aunt or sister, and those of tuberculous husbands or wives, who have become ill like them with pulmonary phthisis attributed to everything but the manifest cause.

In former years I preached a crusade against another virulent communicable disease, in the interest especially of innocent and helpless women and children, and for a time I was gratified to find that husbands and fathers began to realize, from the numerous indisputable instances of innocent infection I was able to report, that syphilis might be, as it had been, contracted from combs and brushes and rough-edged drinking vessels in hotels, sleeping cars, and boarding houses, from pens, pencils, and paint brushes that had been held between diseased lips, from dirty old bank notes, from street-venders' toys, from a lover's kiss, a stranger's caress, or a nurse's ministrations. Supported by an array of cases of infected children, young girls, and elderly men and women, the committee of the American Public Health Association, of which I was chairman, advocated the enactment of a law placing venereal disease in the category of other communicable affections and punishing its transmission as a misdemeanor; but there were too many of the self-righteous blind to these beams in their eyes, who thought it wiser to seek to exterminate by ignoring its existence and never uttering the name of a disease that has done more harm to mankind than all the diphtheria, typhoid, small-pox, measles, and scarlet fever which are so carefully isolated and their statistics so regularly collected and promulgated—a disease that travels with the missionary to Asia, Africa, and the Pacific, and decimates bodies faster than he can whiten souls.

I do not expect that all who have eyes will see as I do, or, having ears, hearken to what I say. The idle and perverse generation of the first century will have its following in the twentieth, and men and women will continue to do the insanitary things they ought not to do, and leave undone the sanitary precautions they ought to take, despite our warning, our imploring, our advice, or our denunciation. However benevolent and beneficent the hygienist's aim, his unappreciated, unrequited, and often unprofitable labor is enough to deter him from what has been derisively described as only an effort to procure the survival of the unfit, and thus thwart Nature's own attempt to rid the world of them. He encounters another obstacle to success as aggravating as the disbelief in the necessity for his work. The authorities listen to his warnings, and then employ their own perfunctory and superficial methods of protection. Told that absolute cleanliness is the fundamental fact of sanitation, street cleaners are set at work brushing the surface dirt into little heaps, which passing vehicles again distribute, or the winds carry into the open windows of adjacent residences. The refuse of the house-

hold is deposited in vessels on the sidewalks of crowded thoroughfares to be emptied after a time into collecting carts, from which clouds of dust envelop passers and circulate back into the houses—*living* dust, for Manfredi found an average of 761,521,000 microbes to the gramme of the street dust of Naples, from which he cultivated pus, malignant oedema, tetanus, tubercle, and septicemia. Swarms of flies feed on the decomposing contents of exposed garbage pans and buckets, and carry their tiny germ-laden booty into the butcher shop of the poor and the kitchen of the millionaire. Who can dispute that if the hair of a Newfoundland dog could transport yellow fever to a distant Mississippi town, and a newspaper printed in an Ohio village where small-pox was raging could fatally infect a United States consul in a foreign port where the disease did not exist, that a cloud of dust, a swarm of flies, or a single fly—*as* Sawtschenko, Simmonds, and Sternberg demonstrate—can disseminate cholera and become a focus of infection, which would have been impossible had ordinary care been exercised in preventing the exposure and promptly destroying the discharges and excreta of those already sick? Cities are reported clean whose sanitary inspectors have merely walked through crowded tenements, a hundred or more a day, and been satisfied with external evidences of brush and broom, leaving carpets and rugs unlifted; pieces of heavy furniture, with the fluff of years behind and beneath, unmoved; and closets, cupboards, pantries, storerooms, attics, and cellars undisturbed. The cellars of our great cities—and I speak with personal knowledge of many in New York, Brooklyn, and Philadelphia—are greater abominations than even filthy living apartments. The *New York Herald* of the 8th of August, narrating the death of two children by falling from a window on the fourth floor of a tenement at 204 West Sixty-first Street, said: "To get at the bodies of her children the frantic mother had to go through the cellar of the house. There she waded through indescribable filth, almost knee deep, to where her children lay, when the foul odors overcame her and she fainted." It added: "The Sanitary Superintendent issued an order that the cellar must be cleaned out within twenty-four hours." Do you believe that it was the only one of its kind that needed cleaning? No city can be accounted clean until its ordinances require every cellar door to be widely opened to sun and air—that royal pair of germicides; every cellar to be emptied of its refuse; every cellar wall and ceiling to be scraped and whitewashed; every cellar floor to be taken up if rotted, and sprinkled with lime if uncovered—a tedious and expensive process; but effective sanitation, costly as it must need be, is cheap beside the outlay of a single epidemic. There are underground foulnesses in all our great cities of which they should be rid at any cost, as where rag-pickers and bone-gatherers collect their filthy stores and Italian street-corner fruit sellers keep their decomposing bananas, grapes, and oranges, till, rubbed off by dirty pocket handkerchiefs, they are exposed for sale, glistening after their repulsive polish with impure saliva. If some mote-hunter, loath to see so huge a beam, chooses to find solace in disbelief, I might be able to shock him by declaring that I have seen the figs he munches unconcern-

edly flattened in their pretty boxes, in a country where syphilis reigns, by questionable thumbs moistened by equally suspicious saliva. Shall I, while revealing insanitary horrors, dare lift the sweeping train of the fair promenader, fashioned after that of women in other countries who never walk upon the streets, and show the nasty mess of spittle, excreta, mud, and dust she gathers from the sidewalks upon her white skirts and silk stockings? She will not believe me; but the bacteriologist, who scoops the mud from between the cobblestones of the streets to find it swarming with microscopic life, can gather as rich a harvest of microbes from these same dainty undergarments.

Nor are these the only beams we overlook in our search for motes. Dr. Graham, bacteriologist of Starling Medical College, in response to an official inquiry by a member of Congress, reported that he was able to obtain thirteen colonies of two kinds of bacteria from one dirty, worn bank-note, and the *Medical Record* of January 21st of this year states that a British bacteriologist discovered nineteen thousand microbes, including those of tuberculosis, diphtheria, and scarlatina, vegetating upon a single note.

Other harborers of morbid germs are the textile fabrics employed in the furnishings of street cars and stages, which the chairman of the Sanitary Committee of the New York Board of Health reports as "a menace to public health by reason of their continual exposure to uncleanness and infection from the clothing of diseased and filthy passengers," which, like their grimy bodies, may be foul with the sputa of diphtheria, tuberculosis, or syphilis, the desquamations of scarlatina, measles, or erysipelas, the emanations of typhus, or the alvine discharges of cholera or dysentery. A commendable league of zealous ladies, who are seeking to prevent the abominable practice of expectorating in public vehicles, induced a few car companies to display placards to the effect that "Gentlemen are requested not to spit on the floor," but these appeals intended for beasts, who were never gentlemen, were hung in inconspicuous places or covered by other notices, and the spitters continue to discharge their syphilitic and tubercular sputa on the floor mats, to be taken up on ladies' petticoats and carried to their homes. The spitter and the other beast, who voids his impure nasal secretions where it suits him, are largely responsible for the spread of influenza, for, according to Pfeiffer, the discoverer of its bacillus, "its contagium is found in the moist secretions of acute cases in the discharges from the nasal and bronchial mucous membranes."

Further detail would be out of place in an introductory address to this section. Let it suffice to point to the fragile spirillum of cholera which we are exorcising by "bell, book, and candle," as illustrating the dreaded *motes* of my text, and to the sturdy, robust bacillus of tubercle as the *beam* we will not consider. "Cholera," says Ernest Hart, "can only be drunk and eaten. It can not be caught and breathed"; but the tubercular mischief-maker, who finds the ever-open door of the respiratory passages his readiest approach, may also enter at any or all the orifices of the body. Among 1,000 autopsies, Osler found 275 with tuberculosis; among 8,873 patients in the surgical clinic at

Würzburg, one seventh (1,227) were tubercular; the necroscopic statistics of Harris and others "show that one third, perhaps over one half, of the people who live to middle age have some form of tubercular infection"; and Dr. Williams, of Johns Hopkins Hospital, estimates that tuberculosis of the female generative organs is four times more frequent than generally supposed (*Medical Record*, March 18th). Can any more obvious method of direct infection in these cases be imagined than the trailing skirts of women gathering tubercular sputa from the pavements?

The sanitary inspector is destined to become the most important agent of future civic administration. The perfunctory burning of a pan of sulphur in a diphtheritic chamber, the sprinkling here and there of a solution of corrosive sublimate, or the substitution of the sweeter scent of thymol, pinol, or some newer "ol" for the foul odor of the privy, will not then be the tolerated limit of his interference. All that science teaches and all that intelligence can devise will be exacted of him. A sanitary inspection will be a deliberate, painstaking, critical examination of nooks and corners and their disinfection, the flooding of the lairs of microscopic motes, and the deluging of unsightly beams with those unstopped, unpated, inexhaustible germicides—air and sunshine.

Coincident with the approaching Eleventh International Medical Congress at Rome, and its fitting complement, there is to be an exposition of medicine and hygiene, and significant of the share accorded sanitary science in a medical congress representing the highest modern professional attainment, it will be noticed that of the *ten* classes which, in their *ensemble*, make up the exposition, *five* are exclusively hygienic—to wit, (4) plans, models, and *matériel* bearing on school management and sanitary civic organization (*riordnamento urbano*); (6) plans, models, and *matériel* for hygienic constructions; (7) apparatus and furniture for hygienic uses in the interior of common dwelling-houses and public offices on every scale; (8) *matériel*, appliances, and accommodations for the practice of personal hygiene; and (9) plans, models, and appliances for the hygiene of the working classes. Three are partly hygienic—to wit, (1) apparatus, *matériel*, and plans of buildings for scientific and technical investigation in therapeutics, biology, and hygiene; (3) articles and appurtenances requisite in salvage service and in *assistance publique*; and (10) books, atlases, photographs, and such like recently published and having reference to the medical, biologic, and hygienic sciences.

Two only of the *ten* are exclusively medical and surgical, to wit:

(2) Apparatus, instruments, and *matériel thérapeutique* in the various departments of medicine, and (5) plans, apparatus, and furniture for the purposes of the divisional surgeon in cities. Additional to these, special classes are devoted to hydrology and balneotherapy, and to the Italian Red Cross Society, both of which are practical outcomes of sanitary endeavor.

I do not forget that climatology and demography, as well as hygiene, are within the purview of this section; but what are climatology and climatotherapy but applied hygiene, and what demography but the demonstration of the

results among masses of people of sanitary or insanitary conditions? The climatologist is of necessity a hygienist. The *Materia Medica* and *Pharmacopœia* are not his text-books. Physical geography, meteorology, hydrology, balneology are his scriptures and gospels; the vivifying light, invigorating air, and healing springs and waters his armamenta—his anodynes and hypnotics, his roborants and eutrophics, his alterants and excrements. The high professional standing of the American Climatological Association, one of the constituent bodies of the Congress of American Physicians and Surgeons, and the distinguished climatologists who are with us to-day and who are conspicuous in every international congress of hygiene, are evidences of the place in medicine of climatotherapy, the practical end of medical climatology—that broad specialty which robs so many graves of untimely victims and makes so many, heretofore without hope, able, if not to take up their beds, at least to get out of them and walk. The field of the climatologist is as broad as the habitable surface of the globe—in the high altitudes of Colorado and the Alps; in the odorous pine forests of Norway and the Carolinas; on the seashore or upon the wide waste of waters and their islet oases swept by ocean breezes.

Our American vital statistics are not yet piled high enough to form the foundation for a substantial superstructure of demography. The great caldron in which we are mixing Celts and Saxons, Semites and Aryans, with a seasoning of syphilis, tuberculosis, and insanity, is simmering with what ultimate homogeneity can only be conjectured. When immigration was a tiny stream, however muddy and noisome, poured into a rapid river of pure water, it was soon lost in the crystal fluid; but now that huge sewers are discharging their fetid pestilential torrents into a placid lake that has no outlet, the lake itself becomes turbid and unclean. Already in the *culs-de sac*, which are nearest the open mouths of these foul sewers and receive their floating scum—the prisons, reformatories, almshouses, insane asylums, and hospitals—this filthy, debased, and diseased foreign element is ascendant, and our demographers have a simple task in representing its volume by numerical statistics. Dr. Frederick H. Wines, the distinguished compiler of this portion of the census of the United States for 1890, demonstrates by the indisputable evidence of figures that while the foreign-born constitute only seventeen per centum of our total white population—in round numbers about one sixth—yet they furnish over half of all the paupers in the almshouses of the country. It is evident that the traits of the Saxon are disappearing from our national complexion, and if the proper solution of the negro question be, as suggested by certain prominent Afro-Americans, to bleach it out by admixture, we may expect the hue of our descendants to be decidedly tawny.

The most zealous demographers of this decade are the French, who have been spurred in their statistical researches to discover the causes of the too evident depopulation of France of its native races; but are we not again refusing to consider the beam in our own eyes in not giving heed to the operation of similar conditions in our own country? Dr. Billings announces that our birth-rate has

fallen from thirty-six in a thousand inhabitants in 1880 to thirty-one in a thousand in 1890. The twenty to thirty children of our ancestors, the dozen or more of our great-grandmothers, have dwindled progressively to five or six, then to three or four, until to-day one or two or none represents the fecundity of the educated classes. *The Independent*, referring to New England Puritan life, says: "Large families abounded. According to Cotton Mather, one woman had twenty-two children and another twenty-three by one husband, and a third was mother to seven-and-twenty. Sir William Phipps was one of twenty-six children of the same mother. Printer Green had thirty. The Rev. John Sherman, of Watertown, had twenty-six children by two wives, the second spouse the mother of twenty. The Rev. Samuel Willard, first minister of Groton, had twenty children, being himself one of seventeen, as was Benjamin Franklin." The paragraphist who can now record the case of the woman of thirty-one at Cold Spring, who has become the mother of seventeen children in nine years, or that of the Georgia matron of twenty-five who rejoices in thirteen, has, in newspaper parlance, "a great find." The spectacle of impending maternity among our better classes is becoming more and more rare, and still more rare that of an infant nursing at its mother's breast. Only in the squalid quarters and *bantieux* of our great cities, where the English language is not spoken among imported lazzaroni and the overflow of European ghettos, does the process of human incubation go on as God and Nature intended. The laws of creation are immutable, and one has only to look beneath the disfigurement of female dress to recognize the evidences of imperfect physical development—in stooping, unsymmetrical shoulders, in meager limbs, in narrow pelves, and flattened busts. Dr. Otis exhibited at the recent meeting of the American Climatological Association, in illustration of diametric measurements of the thorax, the profiles of a number of female chests, which were supposed to be those of little girls, until he explained that they were the contours of nubile young women in Boston normal schools, like her whom Solomon bewailed in The Song of Songs: "We have a little sister, and she hath no breasts: What shall we do for our little sister in the day when she shall be spoken for?" My friend, Dr. Robert T. Morris, of New York, has significantly called attention to the fact that eighty per centum of all Aryan American women have rudimentary clitorides, and he asks if evolution is trying to do away with this organ in the degenerative changes characteristic of highly civilized varieties of the *Homo sapiens*, of which early falling hair, decaying teeth, weak mammary glands, and badly balanced eye muscles are other examples. Is the sexual instinct losing its potency as a maternal factor? Is marriage only a social office for the display of finery on the brides and bridesmaids and the entertainment of crowds of gaping strangers? Is the virgin wife best prepared for conception by months of preliminary surexcitation and feverish anxiety, and is a fatiguing railroad journey the best prelude to an act which should lead to the inception of a human being—the incarnation of a human soul? Has the function of reproduction come to be regarded only as a bestial and un-

desirable concomitant of matrimony, and lactation its vulgar, indecent supplement, and is all this attributable to physical deterioration shown by the undeveloped or imprisoned *mentula muliebris* and atrophied mammae, and how far is this the explanation of the diminished fecundity of the Aryan American woman? These are problems as interesting to our demographers as the depopulation of France, the disappearance of South Sea Islanders, the migration of Semitic and Mongolian races, and the effects of malnutrition of indigenes of Ireland and Russia.

But, gentlemen, I shall no longer trench upon time that belongs to you. I am highly gratified at your presence and thank you most cordially for your kind attention.*

SEÑORES, AMIGOS Y COLEGAS DE FUERA: Permitidme daros la mas cordial bienvenida á nuestra capital, á nombre de los miembros de los Estados Unidos de esta Sección.

El largo viaje que habeis hecho para venir á esta ciudad, demuestra el gran interés que os inspira este acontecimiento. De tal y muy importante puede considerarse el hecho, de que por primera vez en su historia, se halle reunida la profesión médica de toda la America en un gran congreso.

Hacen como unos nueve años que algunos Sanitarios Canadenses, reclamaron el derecho de que como Americanos les asistía á ser miembros de la Asociación Americana de Salud Pública y yo, en mi capacidad de Presidente

que era de aquella corporación en aquel entonces, tuve el privilegio de admitirlos como tales.

Las actas subsiguientes de la asociación, demuestran cuán fieles han sido estos miembros á las tradiciones de aquella, con cuanto celo han participado de sus trabajos y cuán dignamente han llenados sus mas altos empleos. Dos años mas tarde se llevaron la asociación á Toronto en su propio territorio.

En 1890, dos distinguidos representantes del Consejo Superior de Salubridad de nuestra hermana la República de Mexico, vinieron á Charleston; y á fuer de Americanos tambien, llamaron á las puertas de la asociación, volviendo al siguiente año en tan crecido número y con una invitación tan cordial de su Gobierno á que nos reunieramos en su propia capital, que fue aceptada su invitación y el *meeting* mas prospero de la asociación—el vigesimo de su historia—se celebró en la antigua Ciudad de los Toltecas.

Hoy en la lista de los Estados representados en el congreso consultivo de la asociación, se hallan fraternalmente unidos, Illinois, Massachusetts y Tennessee, Ontario, Quebec y Manitoba, Guanajuato, Querétaro y Zacatecas.

Lo que han hecho los sanitarios en aquella asociación, que despliega los escudos de los tres paises que la constituyen reunidos, trata de hacer este congreso en favor de toda la profesión médica del Hemisferio Occidental, uniendos sus miembros en una hermandad, cualquiera que sea su raza ó idioma y bien que habiten en las heladas costas del mar Artico ó en las laderas de las colinas de la Tierra del Fuego, entre las montañas de hielo de la Groenlandia, en el archipelago de las Antillas ó en medio de los jardines perpetuos de Hawaii.

Compañeros de toda la America, sed bienvenidos á esta *vuestra capital*, que en el lenguaje mas dulce que es capaz de articular la lengua humana pongamos á vuestra disposición.

THE IMPORTANCE OF PHYSIOLOGICAL CHEMISTRY AS A PART OF MEDICAL EDUCATION.*

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In this age of progression, when the attention of the medical profession is being directed toward a broader and more comprehensive system of medical education, it is well to consider some of the claims presented by physiological chemistry to occupy a prominent place in the medical curriculum of the day, or, if not as an integral part of medical study itself, as a fundamental part of that preparatory training which all progressive minds in the medical profession consider as so important for the most complete and intelligent understanding of the science of medicine in its broadest sense.

There can be, I think, no objection from any quarter to the general statement that the study of biology, together with chemistry and physics, constitutes the best and most

* Read before the Section in Pedagogy of the First Pan-American Medical Congress, September 5, 1893.

* The remainder of the address was delivered in Spanish, of which the following is a translation:

GENTLEMEN, OUR FRIENDS AND COLLEAGUES FROM ABROAD: Permit me, on the part of the members of this section from the United States of America, to tender you a most hearty welcome to our capital. Your long travel to this city bespeaks your interest in the occasion. It is no light boast that here, for the first time in its history, the medical profession of all America finds itself united in one great congress. It was about nine years ago that a number of Canadian sanitarians claimed the right as Americans to become members of the American Public Health Association, and it was my privilege as president of that body to receive them as such. The subsequent transactions of that association show how loyal they have been to its traditions, how zealously they have participated in its work, and with what dignity they have filled its highest offices. Two years later they carried the association into their own territory at Toronto.

In 1890 two distinguished representatives of the Superior Council of Health of our sister republic of Mexico came to Charleston, and as Americans likewise knocked at the door of the American Public Health Association, returning the following year in such numbers and with such a hearty welcome from their Government to meet in their own capital that the invitation was accepted, and the most successful meeting of that association—the twentieth in its history—was held in the ancient city of the Toltecs. To-day the roll of States represented in the advisory council shows Illinois, Massachusetts, and Tennessee, Ontario, Quebec, and Manitoba, Guanajuato, Querétaro, and Zacatecas in one fraternal union.

What sanitarians have done in that association, which bears the escutcheons of its three constituent countries side by side, this congress aims to accomplish for the whole profession of medicine in the Western Hemisphere, uniting its members in one brotherhood, whatever their race or language, and whether their homes be on the frozen shores of the Arctic or the hillsides of Tierra del Fuego, among Greenland's icy mountains, in the archipelago of the West Indies, or amid the perennial gardens of Hawaii.

Physicians and brothers from the United States of all America, welcome to this your capital, which, in that sweetest language spoken by human tongues, pongamos á vuestra disposición.

natural line of preparatory work for the medical student. Indeed, it may well be questioned whether physics, chemistry, and a certain amount of biology should not form a necessary part of the training of any person seeking a liberal education. To be sure, the intending medical student may well pursue these subjects much more thoroughly than one who desires general training rather than special knowledge. The biological sciences, however, so closely underlie the science of medicine, are so plainly the substructure on which the latter rests, that one can hardly conceive of a broad and intelligent comprehension of the subject without a preliminary training in some one or more of the biological sciences.

Just here, however, in order to prevent any possible misunderstanding, let me at once emphasize the fact that what is required first of all of a medical student, as well as of a student in any department of learning, is a broad and well-developed mind, trained to habits of thought and observation, endowed with the power of logical reasoning, and fully alive to the necessity for broad and liberal culture. This is obviously the first requisite, and it is folly to assume that a limited biological training, although valuable in itself, can counteract the defects or make good the deficiencies incidental to the lack of intellectual development. A boy fresh from the district school or from the high schools of our cities, with his mind mostly unformed, is fit neither for the study of medicine nor for that of any other profession. What he requires first of all is mental training. We need not discuss here whether such training should be obtained through classical studies or through mathematics and the natural sciences. It is sufficient for present purposes that the need for general training be widely recognized. Let it be understood that the medical profession demands men of high intellectual attainments, broad and scholarly, and that there is no short road of preparation for medical studies, through biological or other channels, any more than for the professions of law, theology, art, or literature.

Granting all this, as every one interested in the future development of medicine must, we come back to our starting point—viz., that biology constitutes one of the most important, if not the important, preparatory study in medical education. Biology treats of the science of life, of the structure and function of living organisms high and low in the scale. What more natural and appropriate, therefore, than that the student aiming to make his life work the study and treatment of the diseased human body should turn to the study of animal and vegetable forms in order to gain knowledge and experience of the general laws regulating life in all its phases? It is only by a close scrutiny of the simpler forms of life that we obtain the requisite knowledge to unravel the complexities of structure and function characteristic of the more highly developed human organism. The broad line of demarcation formerly drawn between the life processes of animals and plants has been gradually growing narrower and more indistinct until to-day we are forced to believe in the existence of essentially the same kind of protoplasm (*i. e.*, containing essentially the same chemical substances) in animal

and vegetable cells alike, and without regard to the position they occupy in the scale of life, whether in man or in the highest or lowest animals and plants. This naturally leads to the view "that definite fundamental chemical formations and changes are common to all living beings"; and although there are many superficial as well as fundamental differences between the different classes and orders of animals and plants, yet it is evident "that many processes can take place according to a conformable fundamental type. Further in the life processes of man these parallels are again found, whose simplest manifestation we perhaps follow with the least difficulty in the lowest organisms. We are thus brought to a definite unity in the original structure and processes of living existence."* "All living beings, of form and life-phenomena the most widely different, appear to owe their fundamental structure to an original chemical organization, with properties common to them all," from which we can see direct gain to the medical student in the study of lower forms of animal and vegetable life.

Further, as an indirect gain, it must not be overlooked that in such lines of biological inquiry the student, while acquiring a fund of useful information more or less directly applicable to his every-day needs, undergoes a training the value of which can not be overestimated. His powers of observation are called into play, the habit of drawing deductions from observed facts, the noting of resemblances and differences, all tend to educate him in methods of exact work and lead eventually to habits of self-reliance and a freedom from prejudice and preconceived opinions which will prove of inestimable value in his after-life of practice by the bedside. He learns to appreciate the significance of small things, and becomes thereby well trained in the essentials of accurate diagnosis in a manner which can not be imitated by text-book instruction in any branch of knowledge. He must be taught to observe, and to observe accurately; and being possessed of reasoning powers, soon acquires the habit of close and logical reasoning.

All this, I take it, will be readily granted by the unprejudiced mind, but the question naturally presents itself here as to what is meant by or included under the term of biology. We need not stop for a scientific definition of biology, for our interest centers rather in the interpretation of the word as applied to biological courses of instruction. Judging from the courses offered by most of our institutions of learning under the head of biology, the latter ordinarily includes more or less zoology and botany, with a comparatively large amount of dissection of typical forms. This is coupled with a certain amount of histology and perhaps embryology, all being intended to constitute a more or less thorough presentation of the morphological side of biology. Less thoroughly presented, ordinarily, is the physiological side. To be sure, physiology is usually found as a part of the curriculum of a biological course, but seldom is it taught other than by text-book or with that degree of thoroughness characteristic of morphological

* Quotations from Hoppe-Seyler's address on the Development of Physiological Chemistry and its Significance in Medicine.

instruction. Further, in those institutions where physiology is given a prominent place in the biological course, it is usually a one-sided presentation of the subject. It consists mostly of muscle and nerve physiology, with demonstrations of blood pressure and kindred experiments designed to illustrate mainly the mechanical side of physiology. I would not be considered for one moment as saying a single word against such lines of physiological experimentation or instruction; it is certainly of the highest importance and, in my judgment, is just what is needed in every course of physiological study. But what I would like to impress upon my hearers is that there is another side of physiology which, in this country at least, has not been cultivated as I believe it should be—viz., the chemical side of physiology, or physiological chemistry. It deals with quite a different series of problems from those pertaining to so-called pure physiology, but I venture to say that the phases of physiological study and investigation it presents to us are as fundamental, if not more so, than any other single line of physiological work.

By physiological chemistry I mean something more than the mere application of chemical analysis to a determination of composition. This, to be sure, is important, but more valuable still is a proper understanding of the processes or lines of functional activity going on in the organs and fluids of the body, a rightful interpretation of which, however, must depend greatly upon our knowledge of the composition of the various parts of the body, and upon the chemical constitution of the many organic substances disseminated through the organism. Physiological function depends largely, if not wholly, upon chemical nature and constitution, and although there is much that is vague and incomplete in our knowledge of the chemistry of the body, it is very evident that such chemical information as is obtainable is a necessary preliminary to all physiological study. Indeed, there is hardly a question either in physiology or in the science or practice of medicine that does not draw to a greater or less extent upon physiological chemistry for its solution. As I am now addressing a body of physicians rather than physiologists, I can not do better than to repeat a remark of Professor Hoppe-Seyler's, taken from an address on the development of physiological chemistry, as illustrative of the important position this well-known authority considers this branch of chemistry should occupy in the medical curriculum. "I can not understand," he states, "how at the present day a physician can recognize, follow in their course, and suitably treat diseases of the stomach and alimentary tract, of the blood, liver, kidneys, and urinary passages, and the different forms of poisoning—how he can suitably regulate the diet in these and in constitutional diseases—without knowledge of the methods of physiological chemistry and of its decisions on questions offering themselves for solution, and without practical training in their application." Again, Leube, the noted clinician, exclaims against the underestimation of physiological chemistry in medicine, and emphasizes the probability that the future success of medicine is dependent mainly upon the advancement of this branch of chemistry. In every medical school in the land there should be

a well-appointed laboratory for the practice and study of physiological chemistry in every direction bearing on medical science. So, too, in every well-rounded biological course there should be ample facilities for instruction and experimentation, not only in pure physiology, but likewise in physiological chemistry, so that a broader and clearer conception of physiology may be obtained than is possible by the presentation of a single side of the subject.

Obviously, in a course of biological instruction, the morphological side rightly receives the first attention; form and structure must be first studied, and thoroughly studied, but chemical composition and function are not to be entirely ignored. So, too, in medicine; the unsymmetrical development, especially of the last twenty years, by which the sovereignty of morphology has been attained, giving undue weight to anatomical methods of investigation, has reached its climax, and the clinicians even are now looking to physiological chemistry to aid them in unraveling many of the hidden processes of life, thus hoping to gain clues to clearer methods of diagnosis and more rational lines of treatment. And yet our medical schools are sadly lacking in facilities for teaching, as it should be taught, this important branch of science. Contrast, for example, the time allotted and the facilities afforded for studying physiological chemistry with the time and facilities given to anatomy, histology, and pathology. The difference is appalling, and I say it with all due respect to the position these three subjects justly occupy in the medical curriculum, and with, I think, a due appreciation of the great gain accruing to medicine from the marvelous development of pathological investigation which has been witnessed during the last two decades. If, however, a small fraction of the time and energy given to these branches of medicine had been devoted to the simultaneous study and investigation of the chemical processes of the body in health and disease, I am sure equally important results would have been obtained, and, as a final outcome, a far more satisfactory explanation of many phenomena for which anatomy, histology, and pathology alone have thus far given only incomplete or unsatisfactory explanations. It is from a judicious combination of the results obtainable by different lines of inquiry that the broadest and most definite, as well as the most accurate, deductions are to be drawn. From the very nature of things, no one branch of biology, no one branch of medicine, is capable of affording as complete and satisfactory answers to the many general questions constantly arising as can be furnished by broader and more comprehensive methods of work.

Let us consider now for a moment some of the reasons for our belief that physiology and medicine are greatly indebted to physiological chemistry for their advancement. Obviously, in the first place, we must remember that our knowledge of the composition of the tissues, organs, and fluids of the organism, whether animal or vegetable, is derived entirely from chemical study and investigation. This is plainly self-evident; but, when we consider how far-reaching are the facts thus obtained in promoting our understanding of the laws of growth of the human body, of the relationships of the various physiologically active

and inactive tissues, of their development, of the character and extent of their activity, and of all the variations incidental to pathological conditions, we see at once the great importance of this knowledge in aiding us to a rightful interpretation of physiological laws.

The great progress made of late years in our knowledge of the various digestive juices of the body, of their mode of action, of the character of the products resulting from the digestion of the various classes of foodstuffs, of the conditions favorable and unfavorable to ferment action—these and many other things connected with the study of digestion in its broadest sense have all been accomplished as the result of long-continued and laborious experimentation in the domain of physiological chemistry—results that have not only helped to give us broader and clearer ideas of the physiology of digestion, but have made possible much of the advance in the diagnosis and treatment of disorders of the alimentary tract.

Take from us our knowledge of the chemical composition of the muscle and nerve tissue, and of the characteristics of the various substances entering into their structure, and what a blank would remain! Consider the importance of our ever-growing knowledge regarding the chemical changes going on in the two master tissues of the body, with their influence on heat production and on proteid and other forms of metabolism, and remember at the same time that, in spite of all that has been accomplished in the past, we have hardly passed the threshold of the possibilities opening up before us.

Then, too, the whole broad question of nutrition in general, with its bearing on health and disease; the study of the urine and feces, with the rich results such study affords as a means of diagnosis; the study of the liver and its secretion, the bile—all are in great part chemical problems, partial solution of which has already afforded results of inestimable value.

Then consider for a moment the part chemistry has played in bringing about our present understanding of the manner in which micro-organisms act in the animal body with its bearing upon the whole question of infectious diseases, the discovery of the production of distinct chemical poisons by specific pathogenic bacteria, with the impetus this fact has given to the search for methods of producing immunity. Then, too, we must not forget to recall the great aid chemistry has lent to therapeutics, not only giving us methods for the preparation of purer and more definite products, but opening up methods of studying the physiological action of drugs which have greatly advanced the growth of scientific pharmacology.

In the brief time allotted for this paper we can not, however, even mention further specific instances of the way in which physiological chemistry touches and strengthens almost every department of medicine. I would that I had time to sketch for you a more detailed picture of this whole matter as it presents itself to my own mind, for I am sure that by so doing it would be possible to impress you more fully with the great need of broader and more liberal methods of instruction in this department of science, both as an aid to a better interpretation of biological

laws and as a necessary part of a *liberal* medical education.

And now allow me to say a word regarding the methods of instruction in physiological chemistry. Happily, the day is past when a medical student is compelled to obtain his knowledge of medicine from lectures or even from books alone. Personal instruction and personal experience in the laboratory are essential requisites in any course of instruction that aims at the highest and best results. So in physiological chemistry there must be a well-equipped laboratory where each student is provided with the necessary space and outfit for demonstrating the fundamental truths of chemical physiology. Instructors, too, must be provided, so that at the most not more than fifteen men shall be under the guidance of one teacher, who shall thereby have time and opportunity to study and develop the material committed to his charge to the fullest extent; for men's minds, as you well know, are not all constructed on the same plan, and personal idiosyncrasies need to be recognized and dealt with in such a manner that each may receive the full benefit of the knowledge and training provided.

A course in physiological chemistry, worthy of the name, should extend at least through six months and preferably through a whole year, with an average of fifteen hours of laboratory work a week, interspersed with lectures, recitations, and demonstrations. Such a course of instruction as I have in mind can be advantageously taken only by men who already have knowledge of general, analytical, and organic chemistry, physics, anatomy, and histology, together with more or less familiarity with general physiology. You say, perhaps, that no medical student can afford to spend such an amount of time on a subject only indirectly connected with medicine. But I believe that to be a grave mistake—one that is in part responsible for the large numbers of half-educated men in the medical profession. As Dr. Billings, in a recent paper in the *Forum* on Medicine as a Career, has well said, "this country is in no need of men possessing the diploma of doctor of medicine; it already has at least twenty thousand more of them than it requires or can properly support; but it does need several hundred, say a thousand, more of properly trained physicians." Eighteen years of experience in a large university in teaching physiological chemistry as a part of a biological course, having for its chief aim the preparation of young men for the study of medicine, has convinced me that the time spent in such study is well spent, and that such a line of work can be advantageously made a part of the university or college curriculum, so that the intending medical student may have a fundamental idea of the scope and aim of physiological chemistry before he enters upon his medical course proper, just as he has, or should have, a knowledge of comparative anatomy, physiology, and general biology.

But the medical school itself can well afford to establish a thorough course in this subject; indeed, no medical school at the present day can afford to be without such a course of study if it hopes to rank with the leading institutions of the land, or aims to provide instruction of the highest and fullest type.

And now just a word or two regarding the character of a course in physiological chemistry. There may obviously be different views upon this subject. I can simply present my own. First, I believe that the student should be taught, in the laboratory of course, the general reactions and properties of the various albuminous or proteid bodies, studying likewise their more common decomposition products, their relationships and chemical constitution so far as known. Next in order come the various forms of epithelial and connective tissue, the student separating for himself and studying the various albuminoids which give character to the respective tissues, as the collagen of white fibrous tissue and the gelatin derived from it, the elastin of yellow elastic tissue, the so-called chondrin from cartilage, together with mucin and nucleo-albumin from the mucous tissues. Adipose tissue naturally comes next, and the several fatty acids are separated and studied, melting points determined, and the differences between the natural fats noted. This preliminary work, which involves much more chemistry than can be readily indicated by this short description, is followed by a study of the more important muscle tissue; the properties of muscle, plasma, and muscle-serum are noted and the various proteids and crystalline extractives characteristic of this tissue are prepared and examined. Myosin, the proteid of muscle clot, is especially studied and its resemblance to the related globulins of blood plasma noted.

Again, it must not be forgotten that in order to make such a course as I am outlining of the highest value, no opportunity should be lost to show the physiological bearing of all the results obtained; to try and instill into the mind of the student the idea that the facts of physiological chemistry have a wide application. Thus in the chemical study of muscle tissue, for example, many lectures and recitations may properly be interspersed; sections, for instance, from Foster's *Physiology*, making an admirable addition to the laboratory work, the object being to teach the student to make use of physiological chemistry as a means toward a broader and more accurate conception of physiological phenomena.

Muscle tissue is followed by a study of nerve tissue, the various bodies especially characteristic of this tissue, such as lecithin, myelin, cerebrin, protagon, and cholesterolin, being separated and their general properties and reactions ascertained. The chemical differences between the gray and white matter are also noted, the neuroglia, neurokeratin, and brain proteids are studied, while chemical and anatomical relationships are compared in this as in all other tissues examined.

The study of digestion is taken up next, the various secretions—salivary, gastric, pancreatic, and intestinal—being thoroughly examined. Artificial digestive juices are prepared and their action on the various classes of foodstuffs noted and compared, this serving likewise to illustrate the general action of enzymes or soluble ferments in distinction from the organized ferments. The many products of amylolytic and proteolytic digestion are prepared and separated, their chemical and physiological properties ascertained, and a thorough study made of both the chemical

and physiological side of digestion in its broadest sense, it being the writer's custom at this point to have the students study and recite, in connection with their laboratory work, nearly all of Book Second of Foster's *Physiology*, which treats especially of the tissues of chemical action with their respective mechanisms and of nutrition in general.

In a similar manner, the liver with its secretion, the bile, glycogen and glycogenesis, the spleen, blood, milk, and urine are all studied, and the proximate principles giving character to the several organs and secretions separated and examined. Further, the metabolic activity of the hepatic cells and likewise of the kidney cells is demonstrated by appropriate tests, such as the synthetical production of hippuric acid through the agency of the cells of the *tubuli uriniferi*. The chemical changes incidental to respiration are also experimentally studied, and the detection of blood stains by spectroscopic and other methods duly considered.

To the urine special attention is given, students being taught not only to make examinations of this important excretion, but likewise to determine quantitatively the urea, uric acid, phosphates, chlorine, sulphates, combined sulphuric acid, hippuric acid, creatinin, indican, sugar, albumin, and other abnormal constituents. Further, by daily quantitative examinations of the twenty-four-hours urine, opportunity is given to demonstrate many of the truths of nutrition or general metabolism, such as the influence of various forms of diet on the excretion of urea, uric acid, phosphoric acid, and combined sulphuric acid, the influence of drugs on proteid metabolism, etc.

This outlines very briefly the general character of a course in physiological chemistry such as I would see open to every student of medicine. To one interested in this phase of physiological work such a course of study would naturally serve as a preliminary to more advanced work, which might readily deal with many interesting problems bearing directly upon medicine and medical practice. There is, in fact, almost no limit to the many questions constantly arising that demand the aid of physiological chemistry for their solution.

A CLINICAL STUDY OF PERTUSSIS,

WITH SPECIAL REFERENCE TO THE HEART AND CIRCULATION.

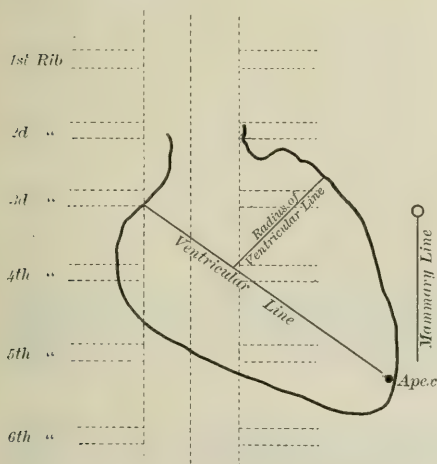
By E. HELEN KNIGHT, M. D.

THE following notes were made on a series of forty cases of pertussis which were seen in a period extending over six months of the present year. The cases were first seen in the service of Dr. Koplik in the Good Samaritan Dispensary and were then visited at their homes, they reporting at intervals at the dispensary. Many of the cases did not come under observation until the spasmodic stage of the disease had set in. The more severe cases were visited once or twice a day while the severe symptoms continued. The milder cases were seen once a day or every other day. The ages of the children ranged from three weeks to ten years. In the study of the cases especial note was taken of the heart and circulation; temperature elevations—in absence of abnormal lung signs;

the condition of the urine; the frequency of the paroxysms and their severity; and effects of certain modes of treatment.

As to the heart and circulation, it is suggested by a number of observers that the heart is under a great strain during the paroxysms of coughing in pertussis, and that the strain is observed in the venous and arterial as well as in the capillary circulation. Also, some authors admit that it is but slowly that the heart regains itself after the paroxysm is over. Steffen (von Ziemssen, vol. vi, p. 696) remarks: "During the attack the action of the heart is essentially impeded and may momentarily cease." Also, "We must assume a transient dilatation of the heart which has an injurious effect upon its action." And again, "After the paroxysms the heart gradually regains itself and, by physical examination in the intervals, is found normal." Eichhorst states that "during the paroxysms the heart's action intermits and the pulse becomes weak." Osler remarks: "The heart stands the strain remarkably well. During the spasm the radial pulse is small, the right heart is engorged, and during and after the attack the cardiac action is very much disturbed."

We have, then, the statements that the heart does bear a strain in pertussis, it being granted by some observers that the organ only gradually recovers itself after the cessation of the spasm. In the study above referred to an effort was made to discover not only the nature of the strain during the paroxysms of pertussis, but also whether such strain persisted in the intervals of the paroxysms, and, if possible, the anatomical condition of the heart which was subjected to this strain.



In these cases the phenomena exhibited by inspection and palpation were that the action of the heart was in many cases irregular in rhythm and also in force during the spasms, and in many cases irregularity was present in the intervals and until the following spasm occurred. The length of time taken for the heart to regain itself varied from about ten seconds to several minutes. The action of

the heart was rapid in all cases, in some disproportionately to the respiration.

The data obtained by percussion and auscultation were more accurate. The method of examination by percussion was devised by Dr. Koplik from plates given by Walshe (*Diseases of the Heart*, p. 3) and by Symington (*Anatomy of the Child*, p. 64). It is as follows (see diagram): A line drawn from the point of apex beat through the junction of the third costosternal articulation on the right side (lower part) represents the median ventricular line. The highest point of the ventricle is the junction of the third rib (lower border) with the sternum on the right side. The radius of the ventricular base runs from the junction of the fourth rib (lower part) and sternum on left, upward, and strikes the middle or the upper part of the third rib. Dullness noted to left of mammary line; to right of midsternal line, in fourth space; and on left side on third, fourth, and fifth ribs.

TABLE A.

Case.	Age.	PAROXYSMS.		MEASUREMENTS IN CTM.	
		Intensity.	Frequency.	To right of mid-sternal line.	With mammary line.
1.	1 yr. and 4 mos.	Severe.	Frequent.	2½	In line.
3.	6 yrs.	Moderate.	Moderate.	1¾	"
8*.	3 yrs.	Moderate (heart case).	"	4	"
10.	10 yrs.	Severe.	"	3	"
11.	7 yrs.	"	Frequent.	2½	½ outside.
12†.	3 yrs.	Mild (heart case).	Few.	2½	½ inside.
13.	1 yr.	Severe.	Frequent.	1½	½ inside.
14.	3 yrs.	"	"	2½	In line.
15.	6 yrs.	"	"	2½	½ inside.
18.	4 yrs.	"	"	2	"
19.	6 yrs.	"	Moderate.	2½	In line.
21.	10 yrs.	"	Frequent.	3	"
29.	4 yrs.	"	Moderate.	2½	"
30.	4 yrs.	Moderate.	"	2½	½ inside.
33.	4 yrs.	Severe.	Frequent.	2½	In line.
40.	6 yrs.	"	"	2	½ inside.

* Case 8, when first seen, was characterized by a loud murmur of aortic insufficiency.

† Murmur of mitral insufficiency present in Case 12 when first seen.

The position of the apex beat in the child is so variously given by different authors that we but state here the position as it was found in these cases—viz.:

In the mammary line, nine cases; inside the mammary line, six cases; outside the mammary line, one case.

Steffen has given the figures for the measurement of the heart to the right of the midsternal line in a great variety of cases. He gives for the ages mentioned 0.11 centimetre less than our measurements show. In some cases of pertussis the heart is found by percussion tests to extend to the right of the midsternal line to an extent equal to the largest measurement normally, and in this series of cases they record the dullness from a centimetre and three quarters to three centimetres to the right of the midsternal line. Case No. 8, showing four centimetres to the right, is not mentioned here, for the reason given in the table. The percussion in these cases of pertussis can be said to be persistently large. It is, of course, difficult to fix a dilatation which passes the normal only by 0.11 centi-

metre, but if we find, in a large series of cases, a percussion area which equals the largest limit put down as normal by competent observers, or even surpasses this limit, we can justly think of overdistention or relaxation of the ventricle.

In thinking of the causes of possible dilatation of the right ventricle, we note here that Allbutt (*St. George's Hospital Reports*, 1870, p. 23), writing of the changes found in the hearts of laborers or soldiers who lifted heavy weights or who made forced marches while expansion of the chest was hampered by position or clothing, showed in many cases dilatation of the right ventricle, in a less number dilatation of the left, and in a still less number dilatation of both ventricles.

Black (*Lancet*, 1872, vol. ii, p. 253) states that mechanical influences, he considers, are largely responsible for diseases of the right heart, while those of the left heart more frequently arise from tissue inflammation. Again, that the former are passive and secondary while the latter are active and primary.

We have concluded that, if dilatation of the right ventricle can not be mapped out, we can conservatively assume from our studies a passive distention of this side of the heart in severe cases of strain in pertussis.

The facts obtained by auscultation were, in part, verifications of former statements. The rhythm of the heart was disturbed in twenty-five out of forty cases. In six cases this disturbance existed to a marked degree, the heart taking a considerable time in which to regain itself after cessation of spasm.

The spasm itself we find thus classically described by Niemeyer (vol. i, p. 95): "The coughing fit begins with a long-drawn, clear piping sound produced as the air is slowly drawn into the contracted glottis. Then follows a series of short, sharp, rapidly interrupted expiratory coughs, and this in turn is succeeded by the crowing, long-drawn inspiratory act."

The experiments of Müller and Valsalva show that in forced inspiration (Müller) there is the long-drawn inspiratory act with dilatation of the right heart, congestion of blood-vessels of lungs, with deprivation of blood from the left heart and systemic circulation, and decrease in the pulse tension; and then in forced expiration (Valsalva) the heart is compressed, the veins are congested, the blood is forced into the left ventricle, and then out of the thorax, causing emptying of heart and lungs with weakened heart sounds and reduction of the pulse. These experiments reveal the condition of the heart and circulation during or immediately after the paroxysm in pertussis.

In nine of the more severe cases of this series the heart sounds became changed as follows:

In one case the first sound at apex became roughened.

In one case the first sound at apex was accompanied by a slight murmur.

In one case the second sound became roughened at apex and base.

In six cases the second sound became accentuated—four over the pulmonic orifice, one over the aortic, and one over both orifices.

In two cases loud heart murmurs existed when the chil-

dren were first seen—one a murmur of aortic insufficiency, the other of mitral insufficiency. These are the cases (Nos. 8 and 12) given in the table as heart cases. It was not determined if the murmurs were old or new.

In regard to the question of heart murmurs in pertussis we quote from Osler: "It is difficult to determine if serious damage ever results. Possibly some of the cases of severe valvular disease in children, who have had neither rheumatism nor scarlet fever, may be attributed to the terrible heart strain during a prolonged attack of whooping-cough."

As to the causes of changes in the heart sounds and of the murmurs which arise, we merely question if they may be due to the violent alterations which take place in the heart's own blood supply, or from an impoverished condition of the blood generally (hæmic), or to some more purely mechanical causes to which the heart may be subjected, first during the acute dilatation and then during the acute compression in forced inspiration and forced expiration. The above factors may be active in causing valvular incompetency of a mechanical nature in the intervals of the paroxysms.

That the arterial pulse is disturbed is shown by irregularity, rapidity, dicrotism, and sustained tidal wave. The following table shows the pulsations persistently rapid and the respirations high:

TABLE B.

Case.	Pulse.	Respiration.	Case.	Pulse.	Respiration.
2	146	28	26	120	28
"	120	30	"	104	24
"	100	22	"	120	32
"	120	26	"	112	22
15	96	20	35	124	24
"	120	24	37	120	26
"	100	22	"	140	32
16	100	36	"	128	24
26	112	28	"	128	28
"	120	28	"	128	32
"	104	24			

The most marked features of disturbance are dicrotism and sustained tidal wave, these conditions showing, as is well known, abnormal distention and relaxation of the coats of the blood-vessels. These features are plainly shown in the accompanying sphygmographic tracings.

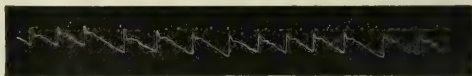


FIG. 1.—Normal trace: healthy child aged thirteen years: irregularity and slight dicrotism.



FIG. 2.—Pertussis, one hour after a paroxysm, showing sustained tidal wave and dicrotism.



FIG. 3.—Pertussis, same as above, five minutes after a paroxysm.



FIG. 4.—Pertussis, showing irregularity and dicrotism; female, aged ten years.

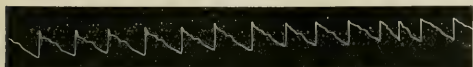


FIG. 5.—Pertussis, same subject as Fig. 4, showing irregularity and dicrotism; female, aged ten years.



FIG. 6.—Dicrotism of pertussis ten minutes after a paroxysm.



FIG. 7.—Dicrotism of mitral disease, mitral regurgitation.



FIG. 8.—Child aged ten years; had pertussis five years ago.



FIG. 9.—Same as Fig. 8.

In two cases where dicrotism existed there was a history of pertussis five years before. We call attention to the fact that slight dicrotism is present in the pulse of the normal child, which is also shown here.

The signs of capillary disturbance are well known—minute hæmorrhages, subcutaneous and into the mucous membranes. Signs of venous disturbance are the accepted ones of œdema of face and eyelids, engorgement of the large veins, cyanosis, dyspnoea upon slight exertion, languor, somnolence. Besides these we have the purely subjective symptom of complaint of the heart's action which occurred in three of the forty cases. In two cases the pain was spoken of as being very severe. The vaso-motor disturbance, as evinced by the flushings, was also marked in some cases. As signs of disturbance of the circulation caused by heart strain, we notice, then, particularly, large heart area to the right, slight changes in the heart sounds, rapid pulse, dicrotism, dyspnoea, languor, somnolence.

Temperature Elevations.—In fifteen per cent. of the cases it was above normal without abnormal lung signs; in one case as high as 101.2° axillary. Some mild cases and some severe ones were ushered in by fever; degree not known.

The percentage of lung complications in the forty cases was as follows: 47.5, slight bronchitis; 20, severe bronchitis; 17, broncho-pneumonia; 15, no abnormal lung signs.

Areas of emphysema were present in about twenty per cent. of the cases.

Condition of the Urine.—Steffen found that albumin may be contained in the urine in pertussis. Sugar has been found (Eichhorst, Osler). "Investigations as to blood are wanting" (Steffen). The urine was studied in twenty out of the forty cases—i. e., in those in which it was obtained without catheterization. Number of examinations made, 86. Reaction acid in all but two examinations. Specific gravity, 1.020, average; from 1.025 to 1.030 during height of paroxysms in several cases, though in some cases even at this period the record shows but 1.004 to 1.006 even where albumin was present.

Table of Urine Examinations.

Case.	Examinations.	Albumin.	Sugar.	Acetone.	Blood.	Leucocytes.	Casts.
3....	1	1	1	1	..	..	....
5....	2	1	2	..	..	..	....
2....	2	..	..	..	..	..	....
10....	4	1	2	..	..	..	....
11....	12	9	9	1	5	..	{ Hyaline, 1. Epithelial, 1.
12....	3	1	2	..	..	..	....
15....	1	..	1	..	..	..	....
17....	1	..	1	..	..	..	....
18....	7	7	7	..	3	..	....
19....	5	3	4	..	..	..	....
21....	4	3	4	..	3	..	....
25....	1	1	..	..	..	1	....
26....	8	8	7	..	4	..	....
27....	1	1	..	..	..	..	....
29....	7	5	6	..	2	..	....
30....	8	6	4	..	2	..	....
33....	7	7	6	..	1	1	....
37....	8	8	7	..	2	..	....
38....	3	3	2	..	2	..	....
40....	1	1	1	..	..	..	....
Total..	86	66	66	2	24	2	2

The presence of albumin in a large proportion of the cases (sixty-six out of eighty-six examinations), and of hyaline and epithelial casts in a small proportion of the cases (two out of eighty-six examinations), may be due to conditions first suggested by Rosenstein. When, either through insufficient compensation or lack of the same, exhaustion of innervation, fatty degeneration of the heart muscle, or lack of correlation between dilatation and hypertrophy, there results lowered arterial tension and, after a time, surcharge and increased tension of the venous system (as a result of the close relation between pressure conditions and rapidity of circulation on the one hand, and the secretory functions of the kidneys on the other hand), the kidneys, in the lowered arterial tension, excrete less urine than normal, the specific gravity is increased, albumin and fibrin cylinders make their appearance.

Albumin, a few blood-cells, and a few hyaline cylinders were present in one case, which had all the symptoms of heart strain, and in which the albumin and blood persisted for a long time into convalescence. Passive hyperæmia of the kidney in this case could be justly assumed. The albumin and casts and also the blood-cells suggest possible effects of an infectious disease, or the blood-cells may have originated from muscular strain. In cases of pertussis, where there are signs of heart strain without fever, the presence of albumin in the urine must weigh in favor of circulatory disturbance in the kidney, as in other parts of the body, in

addition to the possible effects of an infectious toxine. The presence of leucocytes is not considered especially worthy of comment. The sugar and acetone may be due to imperfect digestion, and are but mentioned, as their presence has no direct bearing upon the subject of the paper.

Effects of Certain Modes of Treatment.—In all cases antipyrine was administered from the time the children were first seen. In all cases where heart strain was manifest during the intervals (as evidenced by markedly rapid or irregular or dicrotic pulse, by cyanosis, great languor or malaise, by dyspnea or complaint of heart) digitalis was added to the antipyrine. In all cases where pertussis existed independent of severe broncho-pneumonia the above treatment proved effectual. In three cases, where severe broncho-pneumonia existed and cyanosis was extreme, exhibition of digitalis was followed in twenty-four hours by reduction of unfavorable symptoms. In ten cases, where marked oedema of the face and cyanosis existed without broncho-pneumonia, digitalis markedly relieved the patients. Antipyrine was given in doses of one grain for every year; maximum dose, five grains. Tincture of digitalis, one minim for every year; maximum dose, four minims. The effects of treatment will be best illustrated by citing a few of the cases:

CASE VII.—Celia B., aged one year; coughing two weeks, about fifty times in twenty-four hours; whoops hard; bronchitis present. Antipyrine. The patient failed to report at dispensary; brought ten days later. At this time cyanosis marked, pulse poor, paroxysms severe. Antipyrine and digitalis, with great relief in forty-eight hours.

CASE VIII.—Hyman B., aged three years; coughing three months; expression of intense distress; loud basic murmur of aortic insufficiency, which became much less marked after administration of digitalis, and within one week improvement marked. When seen six weeks afterward, murmur was scarcely audible. No abnormal lung signs.

CASE X.—Emma W., aged ten years; coughing three weeks; paroxysms severe, about twelve in twenty-four hours; lies down most of the time; oedema of face and eyelids. Antipyrine. Improvement within five days. No abnormal lung signs.

CASE XI.—Louis L., aged seven years; coughing three weeks; the last week cough very hard; languor and somnolence marked; oedema, cyanosis, and dyspnea; albuminuria and casts. Thirteen spasms in twenty-four hours. No abnormal lung signs. Antipyrine and digitalis. In sixteen days, spasms reduced to five in twenty-four hours. When examined two months later, although albumin was present, casts had disappeared from urine.

CASE XXXIII.—Lena W., aged four years; has been coughing two weeks, whooping two days; eats nothing; languid and somnolent; cyanosis; oedema of face and eyelids; broncho-pneumonia of right side posteriorly; pulse rapid and markedly irregular. Improved upon antipyrine and digitalis, but not until the latter was given in maximum dose for age.

I desire to express my obligations to Dr. Henry Koplik, in whose service in the Good Samaritan Dispensary these studies were made, and who kindly controlled the progress of the work.

321 EAST TENTH STREET.

A HAND OPHTHALMOMETER AND RETINOSCOPE COMBINED.

By JOHN HERBERT CLAIBORNE, JR., M.D.,
ADJUNCT PROFESSOR OF OPHTHALMOLOGY, NEW YORK POLYCLINIC.

The instrument of which the accompanying cut is a representation is a modification of Placido's disc for the recognition of astigmatism.

Placido's disc is nothing more nor less than a circular board upon which black and white circles alternate. It is perforated centrally by an aperture smaller than the one in the cut herewith shown, but quite large enough for seeing. The cut shows the alternate black and white circles, a large central aperture with numerous white lines traversing the diameter of the circle. On the back of the disc a revolving ratchet is attached in such a way that either a convex lens or a retinoscopic concave mirror may be thrown over the aperture. The cut shows the lens and the mirror detached from the disc. In the *New York Medical Journal* of June 25 and July 2, 1892, in a paper entitled *The Axis of Astigmatic Glasses*, I propounded the propositions that the axis of astigmatism does not occur at haphazard; that there are axes of preference both in hyperopic and myopic astigmatism and in their combinations; that the positions of preference in hyperopic astigmatism are five—namely, 90° , 105° , 135° , 75° , 45° ; that the quarter of the circle from 45° to 135° is the "realm of hyperopic astigmatism"; that the positions of preference in myopic astigmatism are three—namely, 0° , 15° , 165° ; that the third of the quarter of the circle from 15° to 165° is the realm of myopic astigmatism.

It will be seen that the diametric lines shown upon the disc correspond to these axes. The figures are reversed in order that they may appear natural when reflected from the cornea.

The lens behind the disc face may be of any strength desired; it can be removed and replaced. For my part, I find a + 10 D. most satisfactory. This lens gives a fair distance at which one may examine the reflex on the cornea without coming too near the patient. At the same time the reflection is sufficiently large to enable one to see the figures fairly well. The inspection is rendered far more satisfactory by the use of cocaine instilled into the observed eye, since by the use of this drug the palpebral slit is considerably widened. Ordinary daylight may be used, and of this kind of light the reflection from a white cloud is preferable. The gas jet, however, is satisfactory, though the light should be rendered brighter than usual through oxygen mixed with it or through a "Welsback" burner, which renders the light much more intense and white.

I have placed a concave mirror of nine inches focal distance on the other end of the ratchet arm, since the concave mirror which is found on the ophthalmoscope is the one ordinarily used in retinoscopy. It will be seen, therefore, that the instrument is intended as a combination of a portable ophthalmometer and a retinoscope. It is a well-known fact that the much-lauded ophthalmometer of Javal and Schiötz, while it gives the axis of astigmatism fairly accurately, gives no information as regards the character of the astig-

matism. The intention of the double combination in this instrument becomes immediately evident. The axis of the astigmatism having been indicated by the reflection on the cornea, its character is declared by the retinoscopic mirror. Artificial illumination is necessary for the use of the retinoscope; hence this form of illumination will enable one to get the results of examination with this instrument in the shortest time and with the least trouble. Of course, the reflection gives no definite information in regard to the amount of astigmatism, but the retinoscope gives a fairly approximate estimate. Any instrument which measures only

the corneal astigmatism must needs be more or less incorrect. This, too, sets limitations to the usefulness of the ophthalmometer of Javal and Schiötz.

The patient should look directly into the central aperture. If the vertical lines

appear shorter than the horizontal, or the horizontal appear longer than the vertical—i. e., are elongated—there is the so-called astigmatism *with the rule*, for three conditions are possible: First, there may be simple myopic astigmatism, since in this condition the vertical meridian is more sharply curved than the horizontal, and the

image reflected from it is smaller; secondly, there may be simple hyperopic astigmatism, since in this condition the horizontal meridian is less sharply curved than the vertical, and the image from it is larger; thirdly, there may be mixed astigmatism, since in this condition there is a sharper curve in the vertical meridian than in the horizontal.

If, then, the horizontal diameter appears longer than the vertical—i. e., if the reflex on the cornea appears elongated horizontally—there is astigmatism *with the rule*, and the three possibilities are simple hyperopic, simple myopic, and mixed astigmatism.

A turn of the retinoscopic mirror will cause one of these three to declare itself. The same picture is shown by compound hyperopic and compound myopic astigmatism, but so far as the astigmatism is concerned these conditions are the same as simple hyperopic and simple myopic astigmatism. If the vertical diameter appears longer than the horizontal—i. e., if the reflex on the cornea be elongated vertically—there is astigmatism *against the rule*, and one of the possibilities mentioned above exists.

Now, when the axis of astigmatism is neither vertical

nor horizontal some difficulty arises. It is difficult to place the axis at 75° or 105° , 15° or 165° , but at least this much can be seen: the axis is just off the vertical or horizontal. If it be further off the vertical than 75° or 105° , or further off the horizontal than 15° or 165° , it is in the great majority of cases 45° or 135° , and when it is at this angle it is fairly clearly shown.

If the lesser diameter be found at 105° —which is the same thing as the greater diameter or the elongation being found at 15° —there is still astigmatism *with the rule*, and there is simple hyperopic astigmatism (axis 105°), or simple myopic astigmatism (axis 15°), or mixed astigmatism with the axes in their proper realms. If the lesser diameter be found at 75° —which is the same thing as the greater diameter on elongation being found at 165° —there is still astigmatism *with the rule*, and one of the three conditions above mentioned exists with the axes in their proper realms.

Now, simple hyperopic astigmatism hardly ever occupies the axis 15° or 165° , and simple myopic astigmatism hardly ever occupies the axis 75° or 165° , so that I do not deem it necessary to treat these conditions theoretically.

In mixed astigmatism the axis 45° or 135° , which properly belongs to the realm of hyperopic astigmatism, not infrequently is taken by the myopic axis. Let us suppose a case in which the elongation of the reflex is in the axis 45° .

It may be safely said that the possible conditions are simple hyperopic or mixed astigmatism, for simple myopic astigmatism rarely occupies this angle. Suppose it be a case of simple hyperopic astigmatism; the axis of the convex cylinder would be, of course, 135° , since the diameter of 45° would be less curved than that of 135° .

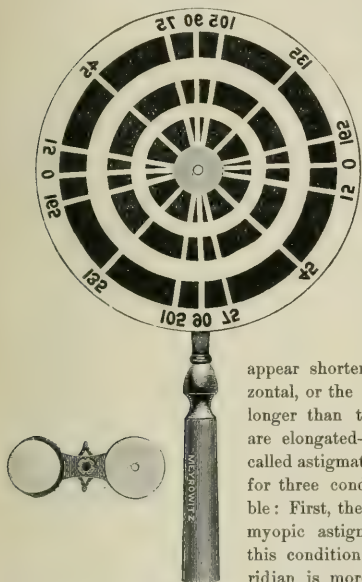
If it were a case of mixed astigmatism, the axis of the convex cylinder would be 135° and that of the concave 45° for obvious reasons. In taking these observations it is better for the patient to look slightly outward in order to avoid the shadow of the brow and nose obscuring the reflex on the inner side of the cornea.

The instrument is made by Meyrowitz.

10 EAST TWENTY-EIGHTH STREET.

The Southern Surgical and Gynecological Association will hold its next meeting in New Orleans on the 14th, 15th, and 16th of November.

The Death of Dr. Henry B. Millard is announced as having taken place in Paris on Tuesday of last week, as the result of typhoid fever, in the sixtieth year of his age. The deceased was a graduate of the Medical Department of the University of the City of New York, of the class of 1858. Early in his professional life he became a homœopathist, but several years ago he returned to the ranks of the regular profession, and after that he entered upon a course of investigation in the pathology of the kidney, and especially in uranalysis, that made his writings on those subjects rank among the most important. He was in the habit of spending his summers in Paris, and he was much esteemed by the physicians of that city. He was a member of the *Société anatomique* and a foreign corresponding member of the *Académie de médecine*. He was also a member of the New York Academy of Medicine and of the Medical Society of the County of New York.



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THE PHYSICIAN AND THE REPORTER.

THERE are many worse things in this world than newspaper reporters and newspaper correspondents. They do good and disseminate much of commercial, religious, literary, and scientific matter, as well as other things. By their labors they refresh many souls—souls that yearn for social scandal; that lust after that clairvoyance which enables its fortunate possessor to select the fleetest among the steeds that are to fly in competition around the orb'd track and to win wealth thereby; that sigh for the flesh-pots of the Stock Exchange; that bask in the ruddy light shed by a realistic description of some "tragedy in real life." But we regret to state that the soul medical rarely finds comfort in their efforts in its behalf, for these are too often either condemnatory of it or uninteresting to it. They have a gentle custom of gloating over the failures of medical science and of jeering at its votaries. They disinter ancient sarcasms at the expense of physicians, adding to the scoffs doubtless cast at Hippocrates by the gamins of ancient Greece—similar to, if not so cutting as, those which, not entirely disconnected with alopecia and she-bears, enriched the history of Israelitish prophets—adding to these the modern mockings of this age, and cast all at the shrinking medical man at regular intervals. This is a trifling sin. But they do not stop at this. They mangle the doctor's technical terms. They interview him and then misquote him. They laud his profession to the skies as scientists in one paragraph, and in another disqualify it collectively and individually from the simple and menial task of carrying abdominal viscera to a bear. They insult his instruments by calling them "cruel-looking," "keen and glittering," etc., and usually call him "handsome" when he knows better, and put upon him personal slights without number. The physician becomes accustomed to such trifles and expects them, but when it comes to the reporting of rare and interesting cases by men who have no idea of their importance to the scientific observer he must utter a protest. It is a small thing for a newspaper man to sit down and write up the history of the particular *homo Natura* which he has recently discovered, embodying very important conditions to the scientist, and condense it into one small paragraph, but it is worse than death to the physician to read it, mainly because of the crude way in which it is treated, for the rare case is as the apple of his eye to the physician. He loves to observe it and to prattle about it; to discuss it in all its bearings on the past, the present, and the future; to write it up, dressing it in voluminous robes of rhetoric, and to put foot-notes on it. But in spite of this he sees his cherished prerogative usurped by a paragrapher who knows not the

A B C of the science with which he tampers, and is careless of the heart on which he tramples. No, he goes on with his brutal brevity in the matter pertaining to medical science, and then devotes three columns with illustrations to the minute description of some infant's swaddling clothes, making even them of uncut cloth! This may call down upon him the contumely of his brethren attached to other newspapers, and may be thereby a cause of his advancement in his station on the staff of his own paper. He may even be detailed to the noble duty of disguising himself as a polyglot *valet de chambre* to some visiting noble and then allowed to publish facts or fancies in regard to the grandee's private life. But he passes over in a few curt lines the negro of Tennessee who attempted to raise tropical fruits by swallowing a lemon seed, which presently sprouted and which would undoubtedly have flourished like the green bay tree had but the horticulturist survived. He does not notice that the hardy seed failed to follow the beaten track pursued by similar pilgrims through the gastro-intestinal canal to the Mecca of its kind, the vermiform appendix, and he shatters all precedent by making the gastric garden he describes a botanical rather than a zoological one—an action which must have caused much commotion among the bones of dead and buried reporters. Now, if he had made his negro the victim of misplaced confidence in a swallowed parrot's egg, both the ensuing parrot and the trusting colored man would have lived and warbled duets together, while Polly's demands for watermelon would have given its foster father an excuse for raids on the neighboring patches. Again, he tells us in three or four lines the history of the case of a gentleman of Georgia who, some twenty-five years since, during the strained relations which existed between the Northern and Southern States, while in the middle of a discussion with some gentlemen of views opposed to his own, was temporarily obliged to discontinue the debate on account of the extremely rapid advancement of an argument in the shape of a Minié ball, which not only reached the seat of his argumentative powers, causing him much discomfort, but has also remained with him to this day, as if ready to meet any new proposition which he might advance. We are informed that this leaden syllogism "shifts around" within the patient's cranium "in the front of the head; at another time in the back." At times it gives Mr. — "much uneasiness while at work in the field by its shifting about and the rattling noise it makes in the head"—probably to the great delight of the baby.

And this is all that a newspaper man has to say regarding a case of this description! There is neither science, imagination, poetry, nor logical reason in him. He cares not for the delight of investigation of the general architecture of the Georgia skull which can accommodate a brain and a perambulatory bullet at the same time, and he does not stop and think of the fidelity of that same wanderer. That Minié ball was an argumentative one, and was put in its present location for a purpose. It is searching for its enemy, and the eye grows moist at the thought of its weary search for an idea. It "shifts around," rushing through the chambers of memory and slamming the doors, all in vain. Then it waits in the back of the head until

ashamed of its sloth, and "shifts" to the front door, looking up and down the avenues of thought until it makes a mad dash over the rattling paving stones at the sight of a brain cell which looks as if it was evolving a thought pertinent to the old discussion, only to make the discovery that it has again been foiled, and that no idea is present.

One more instance of the reporter's depravity is his account of the case of a small boy who, after suffering for several years under the curse of "some baffling eye disease," suddenly recovered his sight with alarming additions. His recovered vision was microscopic and he saw plant lice as large as rabbits frisking over the begonias in the back yard, while mosquitoes with "bills as large as ax-handles" fluttered about him with the evident design of inserting the same into his most cherished anatomical regions, to say nothing of animals and birds of fantastic appearance in the distance. The boy fled with energy and in terror, until he reached the family well and attempted to overcome his agitation by taking a draught of pure cold water. Water has not passed his lips since, for, on raising the moss-covered bucket to his lips, he beheld its contents and saw myriads of uncouth and ghastly things tearing and rending one another, staring at him with searching looks, and reaching out endosmotic processes, swarming in the water he was about to swallow. This was too much, and the boy again fled. There are a few unimportant details as to the opinion of local physicians about the case, such as "the structures of the eyes having undergone complete change," but nothing is reported as to the probable result of this remarkable phenomenon. Though he can be induced at times to drink water, it is only under the guise of a "cuppotea"—he will not touch it in its natural state.

Now consider the fate of that boy. He will become the village sot, after refusing to be an angel on account of some weird thing with wings which he will see flying high up in the sky and which may appear to his untutored mind to be a seraph, and then his case will be sad. His first attack of *mania a potu* will surpass in scope the worst case on record and is terrible to contemplate. Think upon what he is accustomed to see while in a condition of sobriety, and then ponder on what it may become when hallucinatory influences are at work! Nile-green tigers, Scotch-plaid simians, ultramarine rats, and all of the common every-day results of the maddening cup will march before him led in chains of streptococci by ravenous-looking and polychromatic animalcules. He will see the germs of all diseases descending upon him, and yet can not cool his parched mouth with a drop of water. After several attacks of this kind, if he should survive, there may be a hope for him. He must be made to drink only water warm from the still, and become a detective—not of the kind which goeth forth to see whom it may devour, but a bacteriological detective. His marvelous vision will serve him well when aided with a microscope, and he will be able to trace the development of every microbe from spore to ptomaine.

But even this plan offers but little encouragement. Who can say that when he is engaged in observing the development

of a colony of some new microbe which he has discovered there may not saunter into the field of his microscope some germ which he recognizes, but which he fears to be of a variety that he has only seen during some one of his lapses into the realm of fantasy? His only recourse is to immediately relapse, and when he finally attains to the desired state, he may find his new friend absent, but so many of his old, tried companions present that he can not make the observation which he had proposed to make. In his despair he will continue his evil courses until he makes so many new microscopical friends that his labors will only retard instead of advancing science.

The foregoing are but three out of the many instances where the newspaper man has almost daily maddened the physician—maddened him in every mood and tense. There seems to be little or no hope of abating this evil, for the reporter is an animal of wide range, and, even if the heart of one is touched, there are hundreds to take the place of the one convert. We can only lay the facts before our readers, and hope for some better time when Nature shall be more consistent and reporters shall have enough to report without invading the physician's domain.

MINOR PARAGRAPHS.

THE LARGEST PHARMACY IN THE WORLD.

ACCORDING to the *Chemist and Druggist*, July 29th, the pharmacy of Karl J. Ferrein, of Moscow, is the largest in the world, and puts up daily more prescriptions than any other. As many as twelve hundred prescriptions are put up in a day. The dispensing is done in a glass-domed room where twenty-four or more apothecaries are employed, and a clerical and apprentice force nearly as numerous gives a portion of its time to the reception, entering, and delivery of the goods ordered and prepared. If poisonous ingredients enter into the composition of a medicine to be prepared, the checking of weights is done by a weigher specially appointed for that purpose. The *coactorium* has its walls and floor and fittings, as far as possible, made of white marble, and every attention is paid to keeping it scrupulously clean. The lighting is done by electricity. In all, two hundred and ninety-three men and boys find employment in the retail and wholesale departments of the establishment. The average number of prescriptions is not far from three hundred thousand annually, and the average amount of money received for their dispensing is three hundred and sixty thousand roubles. It is alleged by the *Pharmaceutische Post* that this gigantic business is founded on a reputation earned by Mr. Ferrein for the purity of his drugs and for absolute accuracy in dispensing. The founder died in 1887, but his two sons perpetuate their father's name and methods of business.

JOURNALISTIC APPRECIATION OF MEDICAL MEN.

A PLEASING offset to the abusive newspaper article that we republished last week is the following, written apropos of the late Dr. Vought, which appeared in the editorial columns of the *Sun* on Thursday of this week:

"There are always risks for doctors in attendance upon patients suffering from contagious or infectious maladies. Yet they are always ready to brave the danger, without flinching, in the interest of humanity. Honor to our noble army of doctors!

"Hundreds of them volunteered for service here last autumn when the city was threatened with cholera. We do not know how many of them have sent word to Surgeon-General Wyman that they stand ready to go to Brunswick or to any other part of the South in which the yellow fever may break out. Whatever be the risks from any disease, the medical faculty is ever willing to confront them. Long live the doctors! We have sent American doctors to the cholera-infected ports of Europe, and several of them have done splendid work there this year. If a hundred of them had been needed, we have no doubt that a thousand of them would have offered their services. Heroes are the doctors. They will enter a pest house without shrinking, attend to every case in it, and do all that can be done to relieve the sufferers. Blessed be the doctors! They are men of science, men of skill, men of earnest purpose, men of sympathetic disposition. They are devoted to their duties. Dr. Walter Vought, who died of typhoid fever last Sunday in the New York Hospital, of which he was house physician, was a man of talent, and still in his early prime. He took charge of the quarantine station at Fire Island last year during the 'cholera scare'; he had rendered service in the Vanderbilt Clinic; he died in a hospital. Though he had but just turned thirty years of age, he was the author of works upon malarial fevers, the cholera, and other diseases; he had already won a name in the profession. We knew him personally, and we can testify that he was a high-minded gentleman.

"There's rosemary, that's for remembrance; . . .
and there is pansies, that's for thoughts."

THE PALMO-PLANTAR SIGN OF TYPHOID FEVER.

DR. FILIPOVITCH, of Odessa, thinks he has discovered a diagnostic sign of typhoid fever that may prove serviceable in cases where at first the usual pathognomonic symptoms are wanting. It is a peculiar callous look and an orange-yellow or saffron-yellow hue of all the prominent parts of the palms of the hands and the soles of the feet—parts which, as is well known, are more or less rosy in health and become bluish in cases of cyanosis. The phenomenon is explained by the enfeebled action of the heart, a diminished amount of blood in the capillaries, and the dryness of the skin. He has observed it in every case seen by him during the last two great epidemics of typhoid fever in Odessa, and his observation is confirmed by another Russian physician, Dr. Skibnevsky. The sign disappears as soon as convalescence begins.

Dr. Filipovitch's article appeared in the *Revue médicale* for August 20th, and an abstract of it is given in *Lyon médical* for September 10th.

A DEATH BY CHLOROFORM.

At the Methodist Episcopal Hospital of Brooklyn a death from chloroform recently occurred. The patient was under treatment for dislocation of the humerus. A very small quantity of the anæsthetic had been administered when fatal syncope set in.

THE INDIAN MEDICO-CHIRURGICAL REVIEW.

A NEW journal thus entitled, published in Bombay, has appeared as an organ of the native surgeons and physicians of western and northern India. It is published monthly under the editorship of N. H. Choksy, M. D.

ITEMS, ETC.

The Army Medical School.—By direction of the Secretary of War, upon the recommendation of the Surgeon General of

the Army, the faculty of the Army Medical School, established by General Orders No. 51, June 24, 1893, from this office, and regulations for the government of the school are announced as follows: Colonel Charles H. Alden, assistant surgeon general, U. S. Army, president of the faculty and lecturer on the duties of medical officers; Lieutenant-Colonel William H. Forwood, deputy surgeon general, U. S. Army, professor of military surgery; Major John S. Billings, surgeon, U. S. Army, professor of military hygiene; Major Charles Smart, surgeon, U. S. Army, professor of military medicine and director of the chemical laboratory; Captain Walter Reed, assistant surgeon, U. S. Army, professor of clinical and sanitary microscopy and director of the pathological laboratory; Captain Julian M. Cabell, assistant surgeon, U. S. Army, assistant to the professor of military surgery and instructor in Hospital Corps drill. "The course of instruction will be for four months, and will be given annually at the Army Medical Museum, in Washington city, commencing on the first day of November." It will include lectures on and practical instruction in—1. The duties of medical officers in war and peace. 2. Military surgery, the care of the wounded in time of war, and hospital administration. 3. Military hygiene. 4. Military medicine. 5. Microscopy, sanitary and clinical; pathological histology, bacteriology, and urinalogy. 6. Hospital Corps drill, and first aid to the wounded. By permission of the Surgeon General, medical officers of the army who desire to avail themselves of the course of instruction, and who are stationed in or near the city of Washington, or who have a leave of absence which enables them to attend the course, may be admitted as pupils under the same regulations as apply to recently "approved candidates for admission to the medical corps of the army." At the termination of the course of instruction the "approved candidates for admission to the medical corps of the army" will be examined by the several professors, and their relative proficiency in each branch will be reported by the president of the faculty to the Secretary of War through the Surgeon General of the army. The regulations are as follows: 1. The president of the faculty will be responsible for the discipline of the school. 2. The junior professor will act as secretary and will be responsible for all property pertaining to the school. 3. A faculty meeting will be held in the office of the secretary on the first Monday of each month from October to March, inclusive, and whenever called by the president of the faculty or the Surgeon General of the army. 4. Resolutions adopted by the faculty relating to the course of instruction, the purchase of books and instruments, etc., will be submitted to the Surgeon General of the army for his approval. 5. The president of the faculty will submit to the Surgeon General of the army, on or before the 1st day of April of each year, a detailed report of the condition of the Army Medical School, including an account of the instruction given and the proficiency of the several pupils as shown by an examination made by each professor at the termination of his course. 6. The hours of instruction will be from 9 to 12 A. M., and from 1 to 4 P. M., daily, from November 1st to February 28th, inclusive, with the exception of Saturdays, Sundays, legal holidays, and the week commencing December 25th. 7. Pupils will be required to be present during the hours designated unless specially excused by the president of the faculty or by orders from the War Department. 8. When necessarily absent on account of sickness or other emergency, pupils will, as soon as practicable, send a written statement to the secretary of the faculty explaining the reason for such absence. 9. The laboratories and library of the Army Medical School will be open for the use of pupils during the hours of instruction designated. 10. Pupils will be held strictly accountable for all instruments and apparatus issued to them

for their personal use during the course of instruction, and for any loss or injury to books or apparatus belonging to the Army Medical School, when such loss or injury is due to carelessness or neglect. 11. Pupils in the Army Medical School, during the hours of instruction, will wear the undress uniform of the grade to which they belong, except when engaged in laboratory work, when a black cambric laboratory gown may be worn.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 26, 1893:

DISEASES.	Week ending Sept. 19.		Week ending Sept. 26.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	33	7	26	8
Scarlet fever.....	44	4	41	5
Cerebro-spinal meningitis.....	1	0	1	1
Measles.....	41	5	56	4
Diphtheria.....	99	31	87	31
Small-pox.....	18	3	38	3

The New York State Association of Railway Surgeons.—The third annual meeting will be held under the presidency of Dr. George Chaffee, of Brooklyn, at the New York Academy of Medicine on November 15th. A cordial invitation is extended to the profession.

Professor Helmholtz has been invited to address the students of the College of Physicians and Surgeons (Medical Department of Columbia College) on Tuesday, October 3d, in the upper lecture-room. Members of the medical profession are cordially invited to be present.

Change of Address.—Dr. Charles H. May, to No. 692 Madison Avenue.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 17 to September 23, 1893:*

KIEFFER, CHARLES F., First Lieutenant and Assistant Surgeon, is relieved from further duty at Fort Meade, South Dakota, and from temporary duty at Fort Yellowstone, Wyoming, and will report to the commanding officer at Fort Assiniboine, Montana, for duty.

LEWIS, WILLIAM F., First Lieutenant and Assistant Surgeon, will, upon being relieved from duty at Fort Assiniboine, Montana, by Lieutenant Kieffer, report to the commanding officer, Fort Apache, Arizona, for duty.

BROOKE, BENJAMIN, First Lieutenant and Assistant Surgeon, will proceed at once from Fort Leavenworth, Kansas, to Fort Brady, Michigan, for temporary duty during the absence on leave of Assistant Surgeon Paul Clendenin.

CLENDENIN, PAUL, Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect upon the arrival of Assistant Surgeon Benjamin Brooke.

PRICE, CURTIS E., Captain and Assistant Surgeon, is relieved from duty at Fort Wadsworth, New York, and ordered to report to the commanding officer, Fort Porter, New York, for temporary duty at that post.

SHANNON, WILLIAM C., Captain and Assistant Surgeon, is relieved from duty in the office of the Surgeon General of the Army, and as assistant to the attending surgeon in Washington, and will proceed to New York city and report in person to the commanding general, Department of the East, for duty as attending surgeon and examiner of recruits in

that city, relieving EDIE, GUY L., Captain and Assistant Surgeon.

HARRIS, H. S. T., Captain and Assistant Surgeon, is relieved from duty at Fort Keogh, Montana, and assigned to duty at Fort Preble, Maine.

WOOD, M. W., Captain and Assistant Surgeon, is relieved from duty at Fort Preble, Maine, and assigned to duty in Boston, Mass., as attending surgeon and examiner of recruits.

IVES, FRANCIS J., Captain and Assistant Surgeon, is ordered to proceed from Fort Sheridan, Illinois, to Chicago, Ill., and report to LA GARDE, LOUIS A., Captain and Assistant Surgeon, in charge of the medical section of the War Department Exhibit, World's Columbian Exposition, for temporary duty.

EDIE, GUY L., Captain and Assistant Surgeon, upon being relieved from duty in New York city, by SHANNON, WILLIAM C., Captain and Assistant Surgeon, will proceed to Washington, D. C., and report in person to the attending surgeon for duty in his office.

SPENCER, WILLIAM G., Captain and Assistant Surgeon, is granted six months' extension to sick leave of absence granted in Special Orders No. 108, A. G. O., May 13, 1893.

BRECHEMIN, LOUIS, Captain and Assistant Surgeon, is granted twenty-three days' leave, to take effect about September 17, 1893.

McLEDDERY, HENRY, Major and Surgeon, is granted leave of absence for one month, to take effect about October 1, 1893.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Six Weeks ending September 16, 1893:*

MURRAY, R. D., Surgeon. To proceed to Pensacola, Fla., for temporary duty. August 10, 1893. To rejoin station. August 18, 1893. To proceed to Brunswick, Ga., for temporary duty. September 14, 1893.

BAILHACHE, P. H., Surgeon. To assume charge of inspection of immigrants. August 14, 1893. Detailed as chairman of board for physical examination of keepers of Life-Saving Stations. August 18, 1893. Relieved from duty as inspector of immigrants. August 22, 1893. Detailed as chairman of board for physical examination of officers of the Revenue-Marine Service. September 12, 1893.

PURVIANCE, GEORGE, Surgeon. To report at bureau for temporary duty. August 6 and 10, 1893. Detailed as chairman of board for physical examination of Surgeon John Vansant. August 28, 1893.

VANSANT, JOHN, Surgeon. Ordered before board for physical examination. August 31, 1893.

HUTTON, W. H. H., Surgeon. To report at Brunswick, Ga. August 10, 1893. To proceed to Cape Charles Quarantine as inspector. August 12, 1893. To proceed to Brunswick, Ga., for temporary duty. August 12, 1893. To rejoin station, Detroit, Mich. September 10, 1893.

HAMILTON, JOHN B., Surgeon. Granted leave of absence for four days. August 16, 1893. Granted leave of absence for ten days. August 29, 1893.

SAWTELLE, H. W., Surgeon. Detailed as member of board for physical examination, Life-Saving Station. August 18, 1893. Detailed as member of board for physical examination of Passed Assistant Surgeon H. T. Goodwin. August 22, 1893. Detailed as member of board for physical examination of officers of the Revenue-Marine Service. September 12, 1893.

AUSTEN, H. W., Surgeon. Detailed as recorder of board for physical examination of Surgeon John Vansant. August

28, 1893. To represent the service at meeting of the Pan-American Medical Congress. September 5, 1893.

GASSAWAY, J. M., Surgeon. To inspect local quarantine at Pascagoula, Miss. August 23, 1893.

MEAD, F. W., Surgeon. To proceed to Chicago, Ill., for temporary duty. August 9, 1893.

CARTER, H. R., Surgeon. To proceed to Fernandina, Fla., to inspect quarantine and return to bureau. August 7, 1893. To proceed to Pensacola, Fla. August 10, 1893. To proceed to Brunswick, Ga., for temporary duty. August 12, 1893. To report at bureau. August 31, 1893. To represent the service at the Pan-American Medical Congress. September 5, 1893. To proceed to Philadelphia, Pa., and Reedy Island Quarantine. September 9, 1893. To proceed to Cape Charles Quarantine and assume command. September 11, 1893. To report at bureau for temporary duty. September 13, 1893.

WHEELER, W. A., Surgeon. Detailed for duty at Camp Low. August 14, 1893. To rejoin station. August 22, 1893. Detailed as recorder of board for physical examination of Passed Assistant Surgeon H. T. Goodwin. August 22, 1893.

CARMICHAEL, D. A., Passed Assistant Surgeon. Granted leave of absence for thirty days. August 16, 1893.

PECKHAM, C. T., Passed Assistant Surgeon. Granted leave of absence for twenty days. August 10, 1893.

GLENNAN, A. H., Passed Assistant Surgeon. To proceed to Reedy Island Quarantine for temporary duty. August 30, 1893.

MAGRUDER, G. M., Passed Assistant Surgeon. To proceed to Pensacola, Fla., as inspector. August 10, 1893. To proceed to Brunswick, Ga., for temporary duty. August 23, 1893. To proceed to Beaufort, S. C., as inspector. September 9, 1893.

KINYOUN, J. J., Passed Assistant Surgeon. Detailed as inspector at New York Quarantine. August 12, 1893. Detailed as member of board for physical examination of Passed Assistant Surgeon H. T. Goodwin. August 26, 1893.

GOODWIN, H. T., Passed Assistant Surgeon. Granted leave of absence for thirty days. August 10, 1893. To proceed to Louisville, Ky., for duty. August 15, 1893. Ordered to appear for examination as to physical condition. August 22, 1893.

VAUGHAN, G. T., Passed Assistant Surgeon. To represent the service at the meeting of Pan-American Medical Congress. September 5, 1893.

GEDDINGS, H. D., Passed Assistant Surgeon. To report at bureau for temporary duty. September 13, 1893. To proceed to Brunswick, Ga., for temporary duty as inspector. September 15, 1893.

COPER, L. E., Assistant Surgeon. To proceed to Savannah, Ga., for duty. August 25, 1893.

DECKER, C. E., Assistant Surgeon. To proceed to San Francisco Quarantine for temporary duty. September 3, 1893.

NYDEGGER, J. A., Assistant Surgeon. To proceed to Jersey City, N. J., for temporary duty. September 2, 1893. To rejoin station. September 9, 1893.

OAKLEY, J. H., Assistant Surgeon. To proceed to Quebec, Canada, for duty. August 26, 1893.

NORMAN, SEATON, Assistant Surgeon. To proceed to New York, for temporary duty. August 18, 1893. To rejoin station. August 23, 1893. To proceed to Jersey City, N. J., for temporary duty. September 3, 1893. To rejoin station. September 9, 1893.

SPRAGUE, E. K., Assistant Surgeon. To proceed to Cairo, Ill., for temporary duty. August 26, 1893.

Society Meetings for the Coming Week :

MONDAY, *October 2d* : New York Academy of Sciences; German Medical Society of the City of New York (private); Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Monmouth, N. J., County Medical Society (Freehold); South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

TUESDAY, *October 3d* : Medical Society of Virginia (first day—Charlottesville); New York Obstetrical Society (private); New York Neurological Society; Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburg, N. Y., Medical Association; Medical Societies of the Counties of Broome (annual), Columbia (annual—Hudson), Orange (semi-annual—Goshen), and Schoharie (semi-annual), N. Y.; Medical Association of Northern New York (annual—Malone); Hudson (Jersey City), and Union (quarterly), N. J., County Medical Societies; Chittenden, Vt., County Medical Society; Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

WEDNESDAY, *October 4th* : Mississippi Valley Medical Association (first day—Indianapolis); Medical Society of Virginia (second day); Medical Society of the County of Richmond (Stapleton), N. Y.; Society of the Alumni of Bellevue Hospital; Society of the Alumni of Charity Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Bridgeport, Conn., Medical Association; Philadelphia County Medical Society; Penobscot, Me., County Medical Society (Bangor).

THURSDAY, *October 5th* : Mississippi Valley Medical Association (second day); Medical Society of Virginia (third day); New York Academy of Medicine; Society of Physicians of the Village of Canandaigua, N. Y.; Brooklyn Surgical Society; Boston Medico-psychological Association; Washington, Vt., County Medical Society; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *October 6th* : Mississippi Valley Medical Association (third day); Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *October 7th* : Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Obituaries.

WALTER VOUGHT, M.D.

DR. WALTER VOUGHT died in the New York Hospital on Sunday, the 24th inst. He had been ill for nearly five weeks with typhoid fever, which from the first had assumed a severe type. The end was rather sudden, from exhaustion.

Walter Vought was born January 8, 1862, in Buffalo. He studied for college in the Normal School of Buffalo. In 1882 he was graduated from the Sheffield Scientific School of Yale College, taking the degree of bachelor of philosophy.

He took his medical degree in 1885 from the College of Physicians and Surgeons (Columbia College), and subsequently

served as interne in the New York Hospital. Having finished his service as house physician in that institution, he spent a year in the study of general medicine, nervous diseases, and pathology in the clinics of Vienna and Heidelberg. On his return to America, in 1888, he became connected with the department of general medicine in the Vanderbilt Clinic, and subsequently with the clinic for nervous diseases in the same institution. He was afterward appointed chief of the nervous clinic, which position he held for a year, but resigned on account of the stress of work. He was the author of a work entitled *A Chapter on Cholera for Lay Readers*, recently published, which gave in a form readily understood by the non-medical mind the history, pathology, and treatment of the disease, with additional chapters on quarantine and disinfection.

He wrote several articles, some of which appeared in print: one on a Case of Syringomyelia, one on Several Cases of Acromegalia, and one on The Organisms found in the Blood in Malarial Fever. All these were the result of original investigation, and gave evidence of a mind whose powers of observation and acuteness of reasoning were far above the average. He was a fellow of the New York Academy of Medicine and a member of the New York Pathological Society, of the New York Neurological Society, and of the Medical Society of the County of New York.

He belonged to the Hospital Graduates' Club and to the Society of the Alumni of the New York Hospital, of which he was secretary.

Dr. Vought was medical director and physician in charge of the quarantine station at Fire Island during the summer of 1892, and showed himself at that time to be fearless and self-sacrificing. He spent a week with but six hours of sleep during the entire period and made order out of chaos in a manner remarkable for one who was entirely unused to such duties and responsibilities. He was a tireless student and searcher after scientific truth, and had acquired a mental equipment of professional knowledge such as few men attain to in a lifetime of study. He possessed unusual powers of organization, and the clinics of which he had charge always showed this in the methodical manner in which they were conducted and the judicious arrangement of material.

As a diagnostician Dr. Vought was acute to an unusual degree. His opinions were rapidly but accurately formed, and showed breadth of knowledge, especially in nervous diseases, in the diagnosis of which he excelled. He was a loyal friend, a sympathetic physician, and a pure and upright man. His many friends will deeply mourn his untimely end, and in losing him the medical profession of New York has lost a brother whose place it will be hard to fill.

Letters to the Editor.

DR. HAMMOND AND THE MEDICAL PROFESSION.

LEXINGTON HOTEL, CHICAGO, September 23, 1893.

To the Editor of the New York Medical Journal:

SIR: My respect for and my sympathy with the medical profession in America and my knowledge of their sentiments forbid me to regard Dr. William A. Hammond as their representative in the defense which he puts forward in your columns of September 16th of the practices of publicity-hunting by newspaper interviews, newspaper portraits, and of the use of and traffic in secret preparations, etc. I have in the course of recent travel received personally from many hundreds of

prominent and representative physicians in Milwaukee, Washington, Boston, Philadelphia, Chicago, Cincinnati, Detroit, and from all parts of the United States their cordial congratulations on the tone and substance of the addresses which I had the honor to deliver at Milwaukee and Washington. I have been assured on all hands of the entire sympathy of the great body of the profession in the views therein laid down and discussed. I should have been surprised, however, and perhaps disappointed, if they had not elicited some expression of pain and anger from certain quarters. "Let the galled jade wince, the withers" of the great American medical profession are, I am assured, "unwrung." Your correspondent, in an access of ethical agnosticism, assumes that the enumeration of ethical data as to medical conduct was or could be a reproof direct or implied to the medical profession of America. That is an unmerited insult which he addresses to his profession, and indicates a view which I apprehend to be special to himself. Let him enjoy the practices which he defends; I do not think he is likely to find much support or sympathy in them from medical men of good standing. His account of the position of the medical men in Great Britain is a parody undeserving of serious notice. As to myself, whom he favors with some personal abuse, I have been avowedly the scientific adviser to, but it is untrue that I have ever held any of the stock of the Apollinaris Water Company. As to his other trivialities, I was the guest of the Pan-American Medical Congress, and on entering its headquarters I registered in ceremonious form.

I have no desire to be honored among "the Pan-Anglians," "the Loyal Legion," the "Fat Men of America," and the other objects of lay interest with whom Dr. Hammond puts medical 'men on a par, and I do not agree with him that medical men should desire to share with them the honor of newspaper notoriety. I do not believe any details of my medical career have ever appeared in any lay paper.

I suggest that it might be desirable for Dr. Hammond to rely less upon his imagination for his facts, and not to assume to speak for a profession from which he has no sort of mandate, and which would, I am well assured, if consulted, repudiate both his advocacy and his methods of action and of expression. I am assured that he utterly misrepresents that profession both in his statement of principles which he ascribes to it and in his abuse of myself.

ERNEST HART.

TYPHOID FEVER IN OAKLAND, CALIFORNIA.

SAN FRANCISCO, September 7, 1893.

To the Editor of the New York Medical Journal:

SIR: The article, Typhoid Fever from a Dairy Farm, in the *Journal* of September 2d, in which Oakland, Cal., is said to have suffered so seriously, appears to rest on the authority of that highly sensational daily, the *San Francisco Examiner*, and the statements are entirely untrue. I am confident that there have not been a half-dozen cases of typhoid fever in Oakland in the last twenty months. There were a few cases of malarial fever in Oakland last June and July, probably thirty or forty, and a few persons were quite sick. I saw a few cases in Oakland, and quite a number of persons came to me in this city from Oakland suffering from malarial symptoms of a remittent type, which yielded promptly to anti-malarial remedies. The idea of over three hundred cases of typhoid fever in Oakland last June and July is most absurd. There are a number of localities in Oakland in which, after a little proper examination, malarial fever would be the first thing to suggest itself to a rational mind, and it was the people living in and about these places that were sick with a remittent fever. The object of this letter is, if possible, to prevent statistics being made up from such

unreliable sources as the *Examiner*, or even from the reports made to the health department of Oakland.

L. J. KING, M. D.

Proceedings of Societies.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

Held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 5, 6, 7, and 8, 1893.

(Continued from page 357.)

SECTION IN GENERAL MEDICINE.

The President, Dr. VICTOR C. VAUGHAN, of Ann Arbor, Mich., in the Chair.

The History of Malarial Fever in the Valley of the Orizaba, and its Relation to Typhus and Typhoid Fever.—Dr. G. MENDIZABAL, of Mexico, added another paper on the subject of malaria. He pointed out some clinical facts showing how the symptoms of typhus and typhoid were modified by the presence of malaria and other extrinsic and intrinsic agents. To successfully deal with malaria and associated diseases a positive diagnosis must be made, and for this the microscope was the sheet anchor.

Typhoid Fever.—Dr. W. C. DABNEY, of Virginia, read an abstract of a paper on this subject. The outbreak of fourteen cases of continued fever, which had occasioned the writing of the paper, had occurred at the University of Virginia between January 15 and April 1, 1893. A careful inspection and research into the sanitary conditions of the buildings and water supply had not resulted in the discovery of any cause for the epidemic in that direction. Next, the habits and outside associations of the five hundred and thirty students attending the college at the time had been closely inquired into, with negative results. The milk supply had next been investigated. The dairy at which the milk had been obtained was some distance from the University. At various times the milk had been tested and found free from added water, but careful inquiry had disclosed the fact that the cows' teats had been washed in water contaminated with sewage and probably infected with typhoid-fever germs. It was in evidence also that at least five of the fourteen persons having the fever had used milk at every meal. Of the fourteen cases, twelve had presented the typical features of typhoid fever; the other two had passed from under the writer's observation.

Dr. OLAISSONNE, of Virginia, said that there was always great difficulty in diagnosing continued fevers in malarial districts, and that for his part he was old-fashioned enough to confine his diagnosis of typhoid fever to those conditions that presented the pathognomonic sign of ulceration of Peyer's glands.

He was sorry that Dr. Dabney had had no opportunity of verifying his diagnosis by autopsy. As the history of the cases did not present typical symptoms, the speaker did not see how they could be classified. He said that in his part of the country cases of fever without distinctive features were called typho-malarial. Referring back to Dr. Risquez's paper, he thought that it would be a great step in advance if the pigment in the blood could be established as pathognomonic of malarial disease; it would do away with the difficulty in diagnosis. It was the speaker's practice to diagnose malarial fever by the administration of quinine; if the daily ingestion of twenty grains did not cause an evening reduction of temperature, he was not dealing with that disease.

Dr. J. W. LAERABEE, of Texas, said that last winter, in Louisiana, forty cases of typhoid fever had occurred from a milk supply. The contamination had been from the water, which had simply been used to wash the cans, and not to dilute the milk with. He also thought that in a malarial district it was almost impossible to make a diagnosis. His custom was to prepare the patients by a dose of calomel, and then to administer quinine; if no benefit was derived and the fever was continuous, the case was probably typhoid. He thought that the term typho-malarial was very misleading, and that to its door many disastrous results could be laid.

Dr. S. SOLIS-COHEN, of Philadelphia, said as there was no *a priori* reason why the name typho-malarial fever should not be used, he would like to hear what those present had to say about mixed infection. He thought that if the pigmentary masses in the blood could be decided upon as distinctively characteristic of malaria, the diagnosis by exclusion would be much facilitated. Thus far he had always been able to decide whether a given case was malarial or not by the quinine test. His method was to use a single hypodermic injection of quinine dichloride and urea. If the case was malarial, the proof would be the absence of the regular chill. He had used quinine chlorhydrosulphide, but he considered the dichloride superior for controlling the after-chill.

Dr. SIBBT, of Carlisle, Pa., explained the peculiarities of typhoid fevers in his community. During a recent epidemic of fever forty-two cases had been closely observed, and it had been found almost impossible to decide what the fever was. He could not say in cases of continued fever where or when the typhoid began or when it ended. For his part, he was inclined to believe that the poisons of continued and typhoid fever were one and the same thing, and that the intensity or mildness of the attack would depend upon the *vis medicatrix nature* of the individual.

Dr. WEST thought an important point would be gained when it could be decided whether or not there was a typhoid condition without typhoid fever, and *vice versa*, and also what was the real nature of the disease when patients walked about until intestinal perforation took place. In his section of the country there was a prevalence of atypical cases of typhoid, and he made it his practice to diagnosticate the cases with the aid of quinine. Where there was no benefit from the drug he excluded malaria. He did not think that two poisons could act simultaneously, and therefore did not believe in mixed infection.

Dr. WILCOX, of South Carolina, said that he did not attempt to diagnosticate atypical cases, but confined himself to classical symptoms. Whether it was a poison or not that did the mischief he did not know, but he was satisfied that combining influences very often masked symptoms in fevers, so that a positive diagnosis from clinical conditions alone could not be made.

Dr. ANDERS, of Philadelphia, thought that it was pretty safe if, during a mild or otherwise irregular endemic or epidemic of fever, a few cases of typical typhoid occurred, to call the disease typhoid fever.

Dr. VAUGHAN said that, while there might be such a thing as typho-malaria, or the combination of the two poisons, as yet it had never been demonstrated, and he was loath to believe in its existence. One theory in regard to the causation of typhoid fever was that the disease could not exist without the presence of a germ, which was always one and the same, and produced the specific poison. Another theory was that the germ was a modified form of the *Bacterium coli commune*, which under certain circumstances became virulent and produced typical typhoid fever. The speaker's theory was that typhoid was caused by any one of a number of germs that did not bear any resemblance to each other. And it was for this reason that the

symptoms were so varied, and the conditions so unlike in a given epidemic. He had just been through an epidemic of six hundred cases in Michigan, and had made very careful investigations, but was obliged to say that he had never as yet seen a typical case of typhoid fever, as set down in the text-books, and had never been able to discover the typical German germ. The drinking water that supplied the district infected during the recent epidemic had been carefully examined, and the Eberth germ had not been found, but a germ which differed from it very materially had been discovered in the spleens of persons who had died from the disease. The drinking water had also contained the same germ. The speaker did not believe that sharp lines could be drawn between the continued fevers, and different names applied to them meaning a difference in their pathology. He believed that the germs of typhoid were very widely prevalent, and that the only reason why the disease was not more prevalent was that the large majority of people were proof against their influence.

Dr. DABNEY did not think that typhoid fever was modified by the existence of malarial poisoning. As for text-book symptoms, he thought they were influenced by location; in his district, for example, it was rare to see the eruption. He was not prepared to say whether the Laveran and the Eberth germ could exist in the same person at the same time or not.

A Contribution to the Clinical Study of Prolonged Remittent Fever.—Dr. DAVID LOBO, of Caracas, Venezuela, added his experience to that of the other speakers as to fevers. He said that the normal type of malarial fever—the intermittent form—was rarely met with in Caracas, and its presence, when noticed, could generally be traced to genuine sources of infection. Close examination seldom disclosed any marked congestion of the liver and spleen in cases which had developed within the bounds of the city. The aspect and extraordinary course of the pyrexia were probably due to the corresponding variations in the power and quality of Laveran's corpuscles, to overpoisoning of the blood, or to some distinct element operating simultaneously with the paludal germ. The variations in temperature did not respond to any fixed law of recurrence; it generally ranged from 38°5' to 40°5' C., and dropped or rose unexpectedly. Remissions took place at any moment of the day. Intermissions might occur, but they could not be counted upon. Chills and sweating might be observed, but never as definite stages of the fever. The circulation and respiration did not exhibit any deviations except those induced by the reaction of the organism under the influence of abnormal heat. The appetite was either very poor or absent, with a tongue smooth, clean, and moist. The bowels were usually normal in action. Intense abdominal pain, meteorism, and profuse diarrhoea or obstinate constipation were indicative of some complication located in the intestines and not of the disease. Vomiting might occur, but it was not a feature. The urine was normal. There was, as a rule, an entire absence of nervous symptoms. The fever frequently ran its course entirely free from complications. Its duration ranged from fifteen to twenty days. The principal features of the disease were, then, the irregular temperature and the lengthened course. The main points by which protracted remittent fever could be discriminated from other malarial fevers were its uncommon course, its irregular temperature, the absence of marked stages of hepatic or splenic troubles, and its resistance to quinine. Between it and typhoid there could be no possible confusion; typhoid was cyclic in its career, was accompanied by intestinal lesions, presented peculiar eruptions, and, besides, was extremely rare at Caracas. The so-called typho-malarial fever exhibited typhoid symptoms, which were never present in ordinary remittent fever. The vomiting of black matter and albuminuria were so perfectly

distinctive of yellow fever that no mistake could be made in that direction. Pernicious fevers were distinguished by their short duration and characteristic aspect. In regard to prognosis, where complicating or intercurrent processes did not occur, a fatal issue was seldom to be feared. The fever might give rise to a special inflammation of the lung to which the term pseudo-pneumonia had been applied. Bronchial respiration was an early sign, and the crepitant râle was absent. Cerebral congestion was an occasional complication, and when it occurred the issue was fatal in nine cases out of ten. Hæmorrhage and acute peritonitis were apt to occur as secondary phenomena subsequently to ulceration of the digestive duct. The treatment of protracted remittent fever required the closest attention, and the symptoms were to be combated as they arose. Quinine as a drug was almost worse than useless in influencing the disease. Warburg's tincture had been found to be the most valuable remedy. Tonics should be prescribed from the first.

Dr. W. F. THAYER, of Baltimore, described the types of malarial fevers as found in his section of the country. He also gave a detailed explanation of the appearance of the micro-organisms found in the blood in the different forms of malarial fever. The main types of malarial fever with which the American physician was familiar each had its own organism, which could be traced through its different stages of development to the destruction of the blood-corpuscle.

Dr. Lobo wanted to emphasize the fact that he excluded the protracted remittent fever of Caracas from any other class, and made it a type by itself. Typhoid was almost entirely unknown in Caracas, and from malarial fever it was, by every means known to the diagnostician, absolutely dissociated. Just what combination of influences had caused the fever the speaker was unable to say.

(To be continued.)

SECTION IN GYNÆCOLOGY.

(Continued from page 383.)

Drainage of Ovarian Cysts where the Adhesions are such that it is Impossible to remove the Sac.—Dr. A. VANDERVEER, of Albany, whose paper had the foregoing title, called attention to the fact that the condition of patients who were to undergo an operation for abdominal tumors was often not ascertained with sufficient thoroughness. His plea was for a more complete knowledge of symptoms and more frequent examinations. Of course, the examinations must be of such a character that the patient's condition would not be made worse. In some cases the environments of the tumor could be so thoroughly mapped out that a severe operation would be almost a certainty. In such cases, and especially if the vital force of the patient had been much reduced, it had seemed to the speaker that the chances of recovery would be increased by not attempting to remove those portions of the tumor sac which were extensively adherent, but by attaching them instead to the abdominal wound and submitting them to drainage. Of course, this might also subject the patient to a certain amount of risk from sepsis, but it would minimize the shock of the operation and probably increase the chances of recovery.

Dr. C. P. NOBLE, of Philadelphia, believed that if one were attacking a malignant tumor of the abdomen and the adhesions were abundant, one should not attempt to do a complete operation, for the result would be a fatal one at no distant day in any event. If the disease was not malignant, he believed that an attempt should always be made to remove the entire diseased structure. One could be certain that death would be the inevitable result in some of the cases, especially those in which the

intestines were crowded forcibly upward by the tumor against the diaphragm and liver.

Dr. A. F. CURRIER, of New York, thought long-continued success in operating sometimes created false confidence, which was bad for patient and physician. Two classes of adhesions might be considered, in one of which the intestines or other viscera were seriously implicated functionally. These must be released at all hazards. In the other class there was an indurated mass in which the viscera might be imbedded. It was often well to leave this mass undisturbed. Leaving a portion of the tumor sac and draining it would follow.

Dr. A. LARTHOEN SMITH, of Montreal, thought the principle aimed at in the paper was that protracted operations were almost sure to be fatal.

Dr. I. S. STONE, of Washington, observed that in cases which offered little prospect of recovery there was sometimes unexpected success, because the operator had not attempted to do too much upon a very feeble patient.

Dr. E. W. CUSHING, of Boston, did not believe that any fixed time limit for operations was possible. Prolonged operations were not necessarily fatal.

Dr. VANDERVEER remarked that his subject did not include the consideration of malignant abdominal tumors, the entire removal of which was often impossible. He would also say that he was not in favor of the use of the thermo-cautery and solutions of iron for hæmorrhage in abdominal operations though they had been advocated by some authors.

The After-treatment of Celiotomy Cases with Special Reference to Shock and Septic Peritonitis.—This was the subject of a paper by Dr. EUGENE BOISE, of Grand Rapids, Mich. Three conditions following operation required intelligent action: hæmorrhage, sepsis, and peritonitis. Shock was a paresis of the sympathetic nervous system, primarily a super-irritation of the entire sympathetic system, intense stimulation of the entire sympathetic system with cardiac and arterial spasm. Its second stage was a paresis due to exhaustion of the heart. Hence in the first stage the indications were for hypodermics of codeine, nitrite of amyl, and nitroglycerin, with copious injections of hot water into the colon. In the second stage the indications were for strychnine, digitalis, and intravenous infusion of a hot saline solution. Prevention of sepsis prevented peritonitis; hence the peritoneal cavity should be made as clean as possible, and drainage and free catharsis were indicated after the operation, a tube or piece of gauze being employed for the former. After every abdominal section there was always a free flow of serum from the blood-vessels into the peritoneal cavity, depleting the vessels, and during the first few hours after such an operation there was paroxysmal abdominal pain, which might be very severe. This was due to irregular and spasmodic peristaltic action, the muscular coat of the intestine contracting unequally and sometimes causing obstruction. Again, as fluids were usually withheld from the patient immediately after an operation, this fact, with the intraperitoneal effusion referred to and, in some cases, profuse perspiration, resulted in depletion of the intestinal blood-vessels. Hence, in order to produce catharsis easily, the current must have ceased to flow from the blood-vessels toward the peritoneal cavity. The spasmodic contraction of the blood-vessels must be overcome, and the blood-vessels must be replenished. Serous effusion would cease after a few hours. Spasmodic contraction of the intestinal muscle might be overcome by a hypodermic injection of codeine, and the blood-vessels might be filled by injecting hot water into the rectum. Catharsis could then be readily effected.

Dr. E. W. CUSHING, of Boston, knew there was great difference of opinion concerning the usefulness of opium after ab-

dominal operations, but he felt that its function of relieving pain and stimulating the heart during the first few hours after an operation should not be overlooked or lightly considered. The obstruction of the bowel which so often followed abdominal operations might be due to imperfect preparation of the patient prior to the operation or might be a result of the operation.

Dr. TUCK, of Cambridge, Mass., said the temperament of a patient was a matter of great importance in preparing her for an operation, some women and some races being extremely sensitive, others not at all. This fact had a bearing upon the prognosis of operations. Great stress should be laid upon the importance of thoroughly clearing out the intestinal canal prior to an operation, calomel and salts being freely used. The salines might be injected under the skin before an operation, with prompt and beneficial result. The condition of the heart should also be attended to before operating.

Dr. C. P. NOBLE, of Philadelphia, believed that the best way to treat shock was to prevent it as far as might be. Important measures were to keep the temperature of the operating room at from 75° to 80° F., to keep the patient well covered with blankets, and to use no wet towels on the body. After the operation, if the heart was weak, large hypodermics of strychnine should be used—as much as a fifteenth of a grain every three or four hours—until muscular twitching occurred. The speaker always gave an eighth of a grain of morphine immediately after an operation if pain was present. Another important point was to keep the patient warm and dry after the operation, the perspiration being frequently wiped away and the limbs rubbed.

Dr. R. T. MORRIS, of New York, believed that no chemicals should be used in the abdominal cavity, as they injured the epithelium of the peritoneum and encouraged the formation of adhesions. A normal saline solution was the only fluid which could be used without harm.

Dr. J. H. CARSTENS, of Detroit, suggested the valuable aid to be obtained by the administration of turpentine, in doses of ten to fifteen drops, when the abdomen began to be distended.

Dr. BOISE did not favor the use of strychnine immediately after an operation. The nitroglycerin and nitrite of amyl were given to relax the arterioles.

(To be concluded.)

Book Notices.

A Manual for Boards of Health and Health Officers. By LEWIS BALCH, M. D., Ph. D., Secretary State Board of Health of New York. Albany: Banks & Brothers, 1893. Pp. 4-5 to 242.

This manual is intended to serve as a practical guide for health officers and health boards, especially in the State of New York, as it is based on the public health laws of that State. The first chapter defines the powers and duties of the State board of health; the second chapter, those of local boards of health; the third chapter, the duties of the health officer; the fourth chapter, the relations of doctors, clergymen, magistrates, and others to local boards; and the fifth chapter, what constitutes a nuisance, the modes of procedure necessary to abate nuisances, and the power to enforce penalties; and the sixth chapter is devoted to general sanitary regulations regarding infectious and contagious diseases, disinfection, and the forms of certificates for reporting births, marriages, and deaths. The volume contains as an appendix a copy of the act, passed in 1893, relating

to the public health. It will undoubtedly prove useful to the health officials of counties, municipalities, villages, and towns.

Nursing: its Principles and Practice. For Hospital and Private Use. By ISABEL ADAMS HAMPTON, Graduate of the New York Training School for Nurses attached to Bellevue Hospital; Superintendent of Nurses and Principal of the Training School for Nurses, Johns Hopkins Hospital, Baltimore, Md., etc. Illustrated. Philadelphia: W. B. Saunders, 1893. Pp. ix-17 to 484. [Price, \$2.]

The authoress of this volume has apparently had abundant experience in the duties of nursing, and her supervisory position has familiarized her with the requisites essential to make a qualified nurse. She has treated her subject in a clear and comprehensive manner, and a nurse familiar with the practice taught by this book will be an orderly, unobtrusive, and helpful assistant to the physician. The only error we note is on page 132, regarding the need of friction during the Brand bath; it can hardly be the custom at the Johns Hopkins Hospital to use friction in the tub only in instances in which there is much nervous tremor or blueness.

There are no important omissions in the work, and we believe it will have a wide sphere of usefulness.

On the Nature and Treatment of Talipes Equino-varus or Club-foot. By BERNARD E. BRODHURST, F. R. C. S., Surgeon to the Royal Orthopaedic Hospital, etc. London: J. & A. Churchill, 1893. Pp. 60.

This treatise, originally published in 1856 and republished in 1876, is again presented to the profession with some additions and rectifications. The author lays special stress upon the fact that tarsotomy or tarsetomy in young children is absolutely unjustifiable, a fact that has been generally accepted by orthopaedic surgeons for years past. The reference to prothetic appliances and the conditions that demand special apparatus might have been more extensive in a monograph such as this.

Ueber Gasphlegmonen. Von Dr. EUGEN FRAENKEL, Prosektor am neuen allgemeinen Krankenhause zu Hamburg. Mit drei chromolithographischen Tafeln. Hamburg und Leipsic: Leopold Voss, 1893. Pp. 56.

In this little monograph the author reviews the literature of emphysematous gangrene and malignant edema, and he then describes his own investigations made to determine the character of the infection. The latter, he finds, is caused by a particular micro-organism, the *Bacillus phlegmones emphysematosus*. The work is a valuable contribution to the literature of bacteriology.

Die Zaraath (Lepra) der hebräischen Bibel. Einleitung in die Geschichte des Aussatzes. Von G. N. MÜNCH, Ord. O. Professor der Universität zu Kiew. Mit 2 Lichtdrucktafeln. Hamburg und Leipsic: Leopold Voss, 1893. Pp. 167. [Preis, 6 M.] [Dermatologische Studien. Herausgegeben von Dr. P. G. Unna.]

This monograph is the sixteenth part of the *Dermatologische Studien* edited by Dr. P. G. Unna. The author has carefully reviewed the references to leprosy in the works of the Greek fathers in medicine and in the Bible. He then reviews later authorities on the subject, dividing the authors into three groups: first, those that consider zaraath and leprosy as identical; second, those who consider that other skin diseases besides leprosy were included in the Biblical references to zaraath; and third, those that consider zaraath and leprosy as distinct dis-

eases. He then presents an interesting historical, geographical, and philological study of his theme, that bears every evidence of wide research and able criticism. The work will be found interesting by all students of the history of medicine as well as by dermatologists.

BOOKS, ETC., RECEIVED.

Baden-Baden und seine Thermen. Von Dr. med. W. Henry Gilbert, Hausarzt des Sanatoriums und Kurarzt in Baden-Baden. Wien und Leipzig: Wilhelm Braumüller, 1893. [Braumüller's Bade-Bibliothek. Pp. viii-169.] [Preis, M. 2.50.]

Die Krankheiten der Mundhöhle, des Rachens und des Kehlkopfes. Mit Einschluss der Untersuchungs- und Behandlungsmethoden. Für praktische Aerzte und Studierende. Von Dr. Albert Rosenberg, I. Assistenten an der Universitätspoliklinik für Hals- und Nasenkrankheiten in Berlin. Mit 178 Abbildungen und einer lithogr. Tafel. Berlin: S. Karger, 1893. Pp. x-329. [Preis, M. 8.]

Therapeutics of Generative Diseases of the Spinal Cord. By CURRAN POPE, M. D., Louisville, Ky. [Reprinted from the *Journal of Bacteriology*.]

Transactions of the Association of American Physicians. Eighth Session, held at Washington, D. C., May 30, 31, and June 1, 1893. Vol. VIII.

Transactions of the Texas State Medical Association. Twenty-fifth Annual Session, held at Galveston, Texas, May 2, 3, 4, and 5, 1893.

Circumcision: its Advantages and how to perform it. By M. Clifford, L. R. C. P. Lond., M. R. C. S. Eng. London: J. & A. Churchill, 1893. Pp. 23.

Memorie dell' Accademia medico-chirurgica di Ferrara. Anni 1892-'93.

Report of Ten Years' Service at the Philadelphia Dispensary for Skin Diseases. By Henry W. Stelwagon, M. D.

Local Boards of Health in the State of New York. Board of Health, State of New York.

Miscellany.

The New York State Medical Association will hold its tenth annual meeting on Monday, Tuesday, Wednesday, and Thursday, October 9th, 10th, 11th, and 12th, at the Mott Memorial Hall, 64 Madison Avenue, New York, under the presidency of Dr. S. B. Wylie McLeod. The announcements on the programme include the following: Address of Welcome, by the chairman of the Committee of Arrangements, John G. Truax, M. D., of New York County; Address by the President; Address: The Medical Work of the Association during its First Decade, by John Shrady, M. D., of New York County; Address: The Surgical Work of the Association during its First Decade, by Stephen Smith, M. D., of New York County; Report of Eight Cases of Placenta Prævia, by Zera J. Lusk, M. D., of Wyoming County; Penetrating Wound of the Anterior Fossa through the Orbital Plate of the Frontal Bone—Recovery, by Zera J. Lusk, M. D., of Wyoming County; The Treatment of Epithelioma and the Canceroid Ulcers by Topical Application, by Nelson J. North, M. D., of Kings County; The Prevention of Disease, by James G. Porteous, M. D., of Dutchess County; Discussion on Lesions of the Pleura (to be opened by John Shrady, M. D., of New York County, propounding the following questions: Question 1. What are the factors of pleurisy? Its forms and contributive conditions? What are the patho-

logical changes in a case of progressive pleurisy ending in recovery? To be spoken on by Frank W. Ross, M.D., of Chemung County, and William McCollom, M.D., of Kings County. Question 2. What are the points of differential diagnosis in pleurisy and other affections of the chest? To be spoken on by Edward F. Brush, M.D., of Westchester County, J. Blake White, M.D., of New York County, and John G. Truax, M.D., of New York County. Question 3. What is the treatment of empyema, with relative value of aspiration, rib resection, and free opening with tube drainage? To be spoken on by M. K. Hogan, M.D., of New York County, and Charles A. Leale, M.D., of New York County. The Surgical Treatment of Pulmonary Cavities, by N. P. Dandridge, M.D., of Cincinnati, Ohio; Remarks on Fermentative Dyspepsia, by Austin Flint, M.D., of New York County; The Open Treatment of Tuberculous Disease of the Joints, by T. M. L. Chrystie, M.D., of New York County; Bloodless Amputation at the Hip Joint—Report of Cases operated on by the Author's Method, by John A. Wyeth, M.D., of New York County; Report of a Case of Osteotomy of Both Femora for the Relief of Deformity following Ankylosis of the Hip Joints, by Reginald H. Sayre, M.D., of New York County; Address: The Obstetrical and Gynecological Work of the Association during its First Decade, by George Tucker Harrison, M.D., of New York County; Rare Forms of Gout and Rheumatism, by Sir James A. Grant, of Ottawa, Canada; Treatment often indicated after Trachelorhaphy, by William H. Robb, M.D., of Montgomery County; R, by Henry D. Didama, M.D., of Onondaga County; Ten Years' Experience in the Treatment of Cataract, by Alvin A. Hubbell, M.D., of Erie County; The Treatment of Enteric Fever, by Gustavus Eliot, M.D., of New Haven, Conn.; Voluntary Commitment of the Insane to Asylums, by W. D. Granger, M.D., of Westchester County; Surgical and Pathological Memoranda, by Donald McLean, M.D., of Detroit, Mich.; discussion on the Treatment of "Appendicitis" (to be opened by Frederic S. Dennis, M.D., of New York County, propounding the following questions: Question 1. What proportion of cases of "appendicitis" end in resolution? Question 2. What class of cases require immediate operation? Question 3. What class of cases do not require immediate operation? These questions will be answered by R. N. Cooley, M.D., of Oswego County, Donald McLean, M.D., of Detroit, Mich., W. S. Tremaine, M.D., of Erie County, Joseph D. Bryant, M.D., of New York County, and John W. S. Gouley, M.D., of New York County); The Male Catheter, with some Observations upon the Proper Mode of Introduction into the Bladder, by Douglas Ayres, M.D., of Montgomery County; Researches on the Efficacy of Vaccinia after Typhoid Fever, by William Finder, Jr., M.D., of Rensselaer County; Reflections on the Need of Close Observation of Disease and upon the Value of Hygienic Therapeutics, by H. Ernst Schmid, M.D., of Westchester County; A Unique Case of Traumatic Tetanus, with Generalization—Recovery, by John G. Orton, M.D., of Broome County; A Case of Puerperal Blindness, by Darwin Colvin, M.D., of Wayne County; A Plea for the Non-operative Method of Treating Dysmenorrhœa, Pelvic Inflammation, and Pelvic Abscess, by T. J. McGillicuddy, M.D., of New York County; An Additional Note on Nephrotomy and Nephrectomy, by E. D. Ferguson, M.D., of Rensselaer County; Fifty Operations for Laceration of the Cervix Uteri, by J. B. Harvie, M.D., of Rensselaer County; Brief Comments on the Materia Medica, Pharmacy, and Therapeutics of the Year ending October 1, 1893, by E. H. Squibb, M.D., of Kings County.

The Strychnine Treatment of Snake-bite Poisoning.—In the August number of the *Indian Medical Gazette* Surgeon-

Captain J. C. Vaughan, of the Indian Medical Service, relates the case of "Hazari Lal, aged about twenty-four, a Hindu of good physique, a convalescent prisoner in the jail hospital at Monghyr, was lying asleep on the ground near his bed. It was a hot night with but little breeze, and he had left his bed to sleep opposite the window, the gratings of which reach the level of the floor. While dozing he felt a snake crawl over him, and reached his hand down to draw his blanket close to him. As he did so the snake seized him by the ulnar edge of the hand and held on to him so firmly that he had to tear it off him before he could fling it away. The snake unfortunately escaped; but the man says it was about as long as his arm. He cried out that something had bitten him, but was apparently not very much alarmed, as he tried to compose himself to sleep. Pain in the limb becoming severe, he called for help and asked for water, but apparently in a very short time he became unable to speak on account of the great pain and sense of constriction in his throat. The jailer and the native doctor both appeared and could get nothing much out of the man, when they noticed that he was salivating freely. This was at nearly 10 P. M., and the man had been bitten fifteen or twenty minutes previously. I was sent for at once, but was unfortunately out, and it was not until nearly 11.15 that I saw him. He was then lying nearly on his back with his eyes half open with a drowsy look in them. Jaws apparently set, retching frequently but rather weakly, while a thick frothy saliva flowed rather copiously from his mouth. While I was watching him he had a convulsive seizure followed in a minute or two by a second one. Pulse, 84, quiet and regular. Respiration could not be very well taken on account of the frequent retching. On examination, one distinct deep puncture and a scratch close to it were found on the inner edge of the right hand above and behind the hypothenar eminence. He also complained by signs of a painful sense of constriction of the throat and chest, and was quite unable to speak, though trying to do so. A one-per-cent. solution of sulphate of strychnine in water and dilute acid was quickly prepared, and at 11.20 P. M. I gave him fifteen minims hypodermically into the right forearm. This seemed a large dose, but the case was obviously *in extremis* and a desperate one. By 11.30 there seemed no difference except that he was, perhaps, a little more awake, so ten minims more were injected. By 12 midnight he seemed to suffer less from exhaustion and to notice things little more, but was still very drowsy and quite unable to speak. Another injection of five minims was now given. By 12.10 A. M. he was much in the same condition and continuing drowsy, so ten minims were again injected; still salivating freely. At 12.25 A. M. the following note was made: Retching very much less; sitting up; constriction of the throat much less, but makes signs to intimate that he can't speak because of it. Is still drowsy; pulse, 84; respiration regular; 12.26, seems improving, but salivating still a little. At 12.30 again tries to sit up; makes signs that his head is swimming, but on being questioned signs that this not so bad now; constriction in chest not so bad now, still can't speak; salivation practically ceased.

"At 12.40 another fit of retching, and after it an unsuccessful attempt to pass urine. Another hypodermic of five minims given. He had now had in all forty-five minims of a one-per-cent. solution of strychnine in the course of an hour and twenty minutes, and there has not been as much as a trace of tetanic spasm. On the contrary, the convulsive seizures noted before the exhibition of strychnine absolutely ceased with the first dose of the drug.

"1.20 A. M.—Has had about fifteen minutes' sleep, and has now just passed about eighteen ounces of clear urine. Complaints of tingling sensations in the limbs and mouth (makes

signs to that effect and answers to leading questions). His head is better now, not swimming; lies down to rest.

"1.45 A. M.—Becoming restless again and inclined to retch. Appears uneasy. Five minims of strychnine solution again injected relieved him at once.

"2.30 A. M.—Has been asleep till a little while ago. Is again becoming restless and inclined to vomit and retch. Strychnine injection of five minims repeated. Again relieved at once.

"3.05 A. M.—Has been asleep since last injection, but is now retching again. Injection (five minims of strychnine solution) repeated.

"5.20 A. M.—Seems wonderfully better, much stronger, can stand by himself, speaks clearly for the first time, no choking or constriction in the throat, but a tingling sensation down the middle line of the chest. Has had a sound sleep since the last injection. After this his recovery was complete, and without further interruption. His appetite was rather poor that day (24th June) and the tingling in the chest did not wear away till the evening of the 24th. There was no pain or swelling at the seat of the bite after 3 A. M. on the 24th."

The patient had in all sixty minims of a one-per-cent. solution of strychnine given in the course of three hours and forty-five minutes, and throughout the whole course of the case, says Dr. Vaughan, there was not one single trace of tetanic spasm, "and that in spite of the fact that I began with the huge dose of $\frac{1}{2}$ of a grain, followed in ten minutes by gr. $\frac{1}{10}$ more. The ordinary B. P. dose for hypodermic injection is $\frac{1}{10}$ gr. In all, this patient had $\frac{3}{2}$ of a grain hypodermically, and not only were there no tetanic spasms, but the restlessness and retching were positively relieved, and sleep followed at any rate, even though we may refrain from saying that it was induced. I shall certainly give strychnine a further trial."

Hæmaturia in Snake-bite Poisoning.—In an article published in the August number of the *Australasian Medical Gazette* Dr. A. Mueller, the well-known advocate of the treatment of snake-bite poisoning with large doses of strychnine, says:

"Within the last few months three cases of hæmaturia after tiger snake-bite have been brought under my notice, in the first one of which, published by Dr. Skinner and myself in the March number of this journal, the microscopical examination of the scanty, dark-brown urine containing blood casts, large masses of cloudy granular epithelial casts, and debris, and numerous shrunken red corpuscles, placed a serious affection of the kidneys beyond doubt. Feoktistow also observed gross anatomical changes in the kidneys of poisoned cats, and further found their urine to produce in small quantities violent toxic effects when injected subcutaneously. We may therefore assume that the snake poison is eliminated through the kidneys undecomposed, or at least but little changed in its effects.

"It appears strange that so important a symptom as hæmaturia has not been previously observed and recorded here, and only within the last few months attracted my attention; but the reasons are obvious. In the first place, the busy practitioner, when attending a case of snake-bite, which usually ends within a short time in recovery or death, has his attention so much riveted by the more patent and alarming symptoms of paresis and paralysis that the conditions of the kidneys and urine are apt to be overlooked, in all acute cases at least, which form by far the greater number. Another reason that caused us to overlook the urine was that we did not expect to find anything in it, especially not blood, since the hæmorrhagic process that marks the viperine poisoning in India is generally absent in poisoning by our colubines, and only indicated exceptionally by bloody vomiting.

"The importance, therefore, of bloody urine in persons bit-

ten by tiger snakes can not be overrated. If it is apt to occur at an early stage, as one of the cases I shall submit undoubtedly proves, and if the process by which the blood is forced through the renal capillaries is the same as in other organs—namely, diapedesis causing both blood and epithelial casts to appear in the scanty secretion of the kidneys—our patients are, in any case of tiger snake-bite, in imminent danger of having these important organs blocked, and the principal, if not the only, door shut by which the insidious enemy can be ejected. Some of it may be thrown out by vomiting and purging, but to initiate either or both in a person collapsing from diminished motor-nerve force does not recommend itself as rational treatment. It is equally hopeless to produce an efficient diaphoresis. When the skin is cold and blanched, and we can not force the blood to the surface because it is accumulating in the abdomen, pilocarpine injections, which have been suggested, are not likely to be of any service. Our only chance of preventing the kidneys from being destroyed is to prevent the dilatation of their capillaries, which gives rise to diapedesis. Once the latter has taken place, the tubes are filled with blood and their epithelium is largely cast off, all remedial measures would appear to be futile.

"In the early and vigorous use of strychnine injections, keeping the renal arterioles and capillaries contracted and the circulation open, we have the only means of coping successfully with the conditions that bring about hæmaturia in snake-bite. It will be seen from the account of the two cases I shall submit that strychnine was not administered at all in quantity sufficient to prevent the mischief. In the first one, in fact, it was not used at all until hæmaturia had set in, the symptoms being so undecided that the young practitioner, who, unfortunately, had never seen a case of snake-bite before, did not feel justified to inject strychnine until his attention was called to the blood in the urine, and shortly afterward coma set in. Then he injected strychnine in very small doses only. In the second case only one ten-minum injection was used. Both ended fatally.

The first case is that of a girl of nine years, bitten by a large tiger snake on the leg while going to school in the morning. She was immediately conveyed to the nearest medical man, distant twenty miles; but, traveling in a dray over rough mountain roads, did not reach the latter until past midday, and then showed so little signs of poisoning—being quite conscious and able to walk—that all treatment was omitted pending more decided symptoms; those she showed—cold and pale skin, quick pulse, and general lassitude—being explainable as mere effects of fright. She was kept under close observation at the residence of the gentleman—a very conscientious and painstaking young practitioner. During the afternoon she voided a *pint of almost pure blood from the bladder*, but scarcely any urine, though frequent mildly stimulating drinks were given to her. At 4 P. M. she suddenly became very drowsy, and rapidly sank into coma. Very small doses of liq. strychnine were then injected at half-hour intervals, which somewhat roused her, but she quickly became unconscious again after each injection, and when slight twitchings of the platysma took place, the further use of strychnine was thought to be risky, and the child died in a comatose state before morning.

"This case, like that of Miss D., shows the irregular and insidious action of snake poison once more to perfection. It first concentrated on the vaso-motor centers, leaving all the other ones comparatively free for more than seven hours, and then suddenly invaded the cortical centers of the hemispheres, but not until it had effectually blocked the kidneys and rendered escape of its victim, even under the most energetic treatment, all but hopeless. If the idea of Professor Virchow, that every blood corpuscle has a consciousness of its own and acts with a

certain degree of intelligence, is the correct one, we might almost feel tempted to grant the same faculties, cunning and malicious in the highest degree, to the subtle ophidian venom.

"The second case of undoubted hæmaturia following tiger snake-bite occurred at Echuca as late as the 1st of May last, the victim being Francis Stanton, alias Professor Hullar, the snake charmer, aged forty-one years. He was bitten on the right hand during one of his public performances by a large tiger snake, nearly five feet long, which he had caught on the previous day. Dr. Warren has kindly furnished me with notes of the case, of which I give, for brevity's sake, abstracts. Immediately after being bitten, Stanton took his own remedies—to wit, a large dose of calomel and some ammonia in brandy, which he alleged to have frequently cured him. He then sent his assistant in the snake charming business for a cab to take him to his hotel; but, before the latter returned and hardly a quarter of an hour after the bite, he suddenly collapsed and fell down unconscious, and by the bystanders supposed to be dead. They carried him at once to Dr. Eakins's surgery, where Dr. Warren, assistant to the latter, at once incised the punctures and injected ten minims of liq. strychninæ P.B., the professor, who had come round from the swoon, all the time objecting to the treatment. He revived sufficiently to be able to walk, and Dr. Eakins having arrived, he was allowed to walk to his hotel, a distance of about two hundred yards.

"He was not again heard of until the following day (Tuesday), when he came to the surgery to have his hand dressed, which was very much swollen. Dr. Warren writes: 'He next visited the surgery about 11 A. M. on Wednesday, and appeared so bad that I ordered his removal to the hospital. *He was passing bloody urine*, was cold and confused, and had been drinking both before and after the bite. Dr. Eakins saw him at the hospital shortly after his admission, when he ordered hot turpentine stupes over the loins, one ounce of brandy in Liebig's beef tea every three hours, and ten-grain doses of chloral and bromide every four hours, as he was very restless. Large (?) quantities of bloody urine were being passed, as well as black tarry motions.'

"When last seen by Dr. Eakins, at 11 P. M., he seemed much improved, but still had a very anxious look about him. Dr. Eakins ordered the matron to look after the patient herself, and to send for him at once on any change occurring. The change came at 4.30 A. M., and on Dr. Eakins's arrival the patient had just died, complaining of intense pain and constriction across the chest, with a fearful sense of smothering and oppression.

"In this interesting case we see the 'harmless' snake poison killing a man in the prime of life after lingering fifty-six hours and a half in his system, principally invading the vaso-motor and finally giving the *coup de grace* by sudden paralysis of the respiratory centers. There is only one point in Dr. Warren's account that does not square with the observations in the other two cases of hæmaturia—namely, the alleged large quantities of bloody urine. Large quantities of blood in the urine would be more feasible, for when the kidneys bleed from any cause their secretion is generally impeded. Unfortunately for the cause of science, an autopsy in this case does not appear to have been made. Three fatal cases of hæmaturia within a few months justify the suspicion that this insidious complication is much more frequent in snake-bite than we have hitherto supposed, and that it renders the prognosis in any case very ominous. We can only prevent but not cure it, and the only chance we have of preventing it is the early and vigorous use of the only antidote we possess."

The Frequency of Pyæmia without an External Wound.

—In the September number of the *Glasgow Medical Journal*

Dr. John Lindsay Steven cites the following passage, on a disease that has been termed periosteal abscess, acute necrosis, and malignant periostitis, from Wilks and Moxon's *Lectures on Pathological Anatomy*:

"When the inflammation is extensive and severe, pus forms under the periosteum, and raises that membrane off the bone to form an abscess around the bone. Thus arises a terrible and very dangerous disease, which is not very uncommon; it nearly always occurs in children or young persons, and is usually ascribed to some injury which is generally not severe. The danger that attends it arises from its disposition to set up a very grave form of pyæmia, during which abscesses occur in the heart and kidneys much more often than in pyæmia from any other cause. The disease is not usually limited to the periosteum; indeed, some French pathologists have said that necrosis of the bone does not occur unless the medullary membrane is implicated. Certainly section of the bone usually reveals an inflamed state within; lymph and pus are found within the medullary cavity and cancelli: yet in many cases this is not so, but the bone is dead, while the interior exhibits no sign of former inflammation. Sometimes the disease kills very rapidly, as, for instance, in six or seven days; indeed, before pus has time to form in large quantity. The periosteum is then found detached, and the bone separated from it by a dirty, brownish, turbid fluid, consisting of pus in which some altered blood is mixed. If the patient live longer—say for two or three weeks—a large quantity of pus is found around the bone, the bone itself being quite naked and white, or, more strictly, of the color of milk of sulphur. The disease generally stops at the epiphyses, but not always; it very rarely, however, reaches the joints. It nearly always attacks one of the long bones, more generally of the lower extremity, but it has been known to affect the pelvic bones, pterygoid process, etc. We have seen it limited to the middle phalanx of one finger in a case rapidly fatal with the characteristic pyæmia."

Dr. Steven then gives an account of a post-mortem examination made by him in a case of the kind that had proved fatal by the supervention of pyæmia. It was the first case he could remember in over eight hundred autopsies, but after he had sent his notes to the printer he encountered another almost precisely like it, and he says that he remembers a case in which, eleven years ago, Dr. Joseph Coats made the necropsy.

Brown-Séquard's Elixir.—As this eminent physiologist is reasserting with great confidence the therapeutical efficacy of testicular and other glandular preparations, it may be interesting to cite negative evidence on the subject. *Lo Sperimentale* (of Florence) quotes from the *Riforma Medica* the results of a long series of experiments with the "liquido testicolare di Brown-Séquard," undertaken by S. Massalongo. He concludes that the testicular liquid of young and healthy mammals, injected hypodermically, has not the slightest effect upon the human organism; that the trifling and transitory modifications of circulation, respiration, temperature, and muscular power are explicable by the excitement and tension of the subject's mind; that any rare and transient improvement observed in the treatment of various organic diseases by this method was due to suggestion and the influence of imagination, to which causes alone is to be attributed the cure of some cases of hysteria and neurasthenia.—*Dublin Journal of Medical Science.*

The City (Charity) Hospital.—An examination of candidates for appointment on the house staff took place on Wednesday of last week, and the following gentlemen became junior assistants: Dr. G. P. Shears, Dr. G. G. Holladay, Dr. Benjamin Touans, Dr. James I. Irvin, Dr. Joseph Grice, Dr. Anton Heger, Dr. S. G. Frank, and Dr. James McDermott.

Original Communications.

CLINICAL CONTRIBUTION TO
THE STUDY OF AURAL SYPHILIS.*

By MAX TOEPLITZ, M.D.,

AURIST TO THE NEW YORK OPHTHALMIC AND AURAL INSTITUTE;
SURGEON TO THE NEW YORK NOSE, EAR, AND THROAT DISPENSARY;
AND LARYNGOLOGIST TO THE MONTEFIORE HOME.

AURAL syphilis may be manifested during the secondary and tertiary stages, and some rare cases also even of primary induration of the auricle have been reported.

Secondary affections are, as a rule, transmitted from the pharynx and nasopharynx through the Eustachian tubes into the middle ear, or they appear in the external meatus as condylomata or ulcers.

Tertiary syphilis is characterized by chronic inflammation of the periosteum of the labyrinth with subsequent hyperostosis or exostosis of the petrous bone, or of the cavities of the labyrinth, leading to stenosis or even occlusion of the latter.

All cases, however, exhibiting syphilitic affections of the labyrinth are due to hereditary or to acquired syphilis of long standing.

The case which I have but recently observed is remarkable by the fact that the labyrinth was affected primarily in the course of a freshly acquired case of syphilis, and that the aural affection began simultaneously with the appearance of roseola.

The patient, a physician, aged forty-one, married, of excellent repute and standing, presented himself at the Aural Department of the New York Ophthalmic and Aural Institute on August 1, 1892, with the only complaint of deafness in the left ear, other symptoms being absent.

Otoscopy revealed moderate congestion of Shrapnell's membrane, which seemed to have disappeared on the following day upon application of two leeches to the tragus. Politization, used for diagnostic purposes, did not improve the hearing.

Hearing power, horologium, A. S. = $\frac{\text{contact}}{36''}$; A. D. = $\frac{1}{8}$.
On August 2d hearing had improved to A. S. = $\frac{1}{8}$.

August 3d.—Hearing worse; leeches to the mastoid.

On the fourth day of observation the right ear, which had been endowed with very acute hearing, had also become affected.

The examination with tuning forks, which did not give any distinct results in the very beginning as to the relation of bone and air conduction and seemed to be leaning more toward a decrease of bone conduction, revealed on August 4th positive Rinné in both ears, but there existed almost as much bone conduction as air conduction, the former having decidedly decreased.

My diagnosis of otitis interna was now fully justifiable, on account of the sudden development of deafness and the great difference of the course of the affection from that of otitis media.

In order to ascertain the aetiology, I questioned the patient about former attacks of syphilis, but with entirely negative result. After repeated inquiries for fresh lesions, the doctor pre-

sented the middle finger of his left hand, which bore in the center a round, hard tumor of the size of a large cherry, representing a genuine, primary chancre contracted during gynecological examinations. Dr. Sigmund Lustgarten confirmed my diagnosis of syphilis. At the same time, pharyngeal mucous patches and a beginning roseola were found. Energetic treatment with inunctions of blue ointment were immediately resorted to, and injections of pilocarpine were independently made by the patient.

The further course of the affection ran as follows:

10th.—Patient experienced a tendency to fall upon rising in the morning, and especially when awakened out of sleep.

The walls of the building seemed shaking. He felt once or twice, for a minute, as if he would like to put his hands against the wall, but the phenomenon was not very marked.

16th.—Hearing power, horologium, A. U. = $\frac{\text{contact}}{36''}$. Tuning fork perceived as above.

Ordinary conversation is well understood, but the patient has to pay strict attention.

Whisper: A. D. = $\frac{8'}{20''}$; A. S. = $\frac{15'}{20''}$.

Conversation: A. D. = $\frac{10'}{60''}$; A. S. = $\frac{6'}{60''}$.

17th.—Result of examination with tuning forks unchanged. Weber's experiment: Tuning fork perceived in either side equally well. Tuning forks, both high and low, are perceived when placed upon right mastoid in A. S., but when right ear is closed, in A. D. R. E. does not hear all the high notes of the piano above g'.

L. E. does not hear all the high notes of the piano above last e; the high notes were perceived as mere taps without the faintest musical sound.

October.—In the beginning of October the hearing of A. D. was almost normal, A. S. somewhat improved.

November 23d.—Whisper: A. S. = $\frac{15'}{20''}$.

Watch: A. S. = $\frac{4''}{36''}$.

Conversation: = $\frac{60}{60''}$.

Rinné: A. S. negative.

Weber's experiment: Diapason vertex not perceived in either ear.

High and low tuning forks equally well perceived. T. F. placed upon right mastoid, best perceived in A. S. Hearing for the watch, whisper, conversation, and tuning fork, and musical hearing were normal.

Mucous patches of the soft palate were not quite healed.

The special features of this case are as follows:

1. The affection of the labyrinth occurred after the appearance of the pharyngeal mucous patches and simultaneously with the appearance of roseola.

2. The aural lesion took place during the secondary stage without attacking the middle ear.

3. The diagnosis of syphilis was made from the ear.

It may be doubted that the affection was located in the labyrinth, and, in its stead, the outer wall of the labyrinth, and more especially the region around the oval window may be preferred for its location. The entire course of the disease, however, contradicts such an assumption, and also the suddenness of the beginning, the well-nigh entire absence of inflammatory signs in the membrana tympani, the mutual relation of both ears during the attack, the relation of bone conduction and the vertiginous attack—all speak in favor of labyrinthine disease.

The pathological changes produced by the syphilitic

* Read before the Otological Section of the Pan-American Medical Congress held at Washington, September 5, 1893.

poison, which entered the lymphatic and blood current of the labyrinth from the pharynx through the aqueduct and the blood-vessels, probably consisted in inflammatory alterations of the membranous portion, the periosteum and the surrounding lymph of the vestibule, and the first turn of the cochlea, with an increase of cellular elements and hæmorrhages. All these changes disappeared after energetic antilutetic treatment.

I have looked over the literature on the subject and have not found a similar case of labyrinthine disease due to secondary syphilis in its early stage without implicating the middle ear.

Politzer* only mentions in general that "in affections of the middle ear due to syphilis the perception of the tuning fork through the skull may be lessened or absent (complication with syphilitic disease of the labyrinth), a fact which essentially supports the diagnosis of specific aural affection when other syphilitic symptoms are present," but he does not mention the early appearance of labyrinthine disease during the secondary stage of syphilis.

123 EAST SIXTY-SECOND STREET.

WATER TREATMENT OF ANGINA PECTORIS.

By CHARLES E. PAGE, M. D.,

BOSTON.

IN an admirable article on Death and Disease on the Stage, in the *North American Review* for August, Dr. Edson refers to "that form of heart disease known to physicians as angina pectoris," often personated by actors for dramatic effect. While, to use a paraphrase, a disease by any other name may sting as much, it doubtless stands less chance of cure than if the diagnosis be correct; and from the delightful effects I have observed from the treatment recommended by the late Professor John Kirk, of Edinburgh, I should be inclined to accept his view as to the true nature of the disease in question, while, on the other hand, the wretched failures attending the routine treatment of angina pectoris as a disease of the heart would seem to indicate pretty clearly to any mind that either the diagnosis or the treatment is far from correct.

It would, of course, never do for an audience to be advised that the hero or heroine in a melodrama dies of a disease so vulgar as stomach cramp, though it might "bring down the house," or clear it out, to give an exhibition of the proper treatment for it—the half-bath, with profuse laving of cold water along the spine! It does, however, occur to me that there may exist here an opportunity for dramatic effect and the winning of a lovely bride by the handsome but impecunious young doctor performing a miraculous cure by seizing a pitcher of ice water and pouring the contents down the heroine's neck!

While I am far from saying that no spasm of the chest (pure English for angina pectoris) ever arises from any cause except the one I have named, nor indeed that the heart itself may not in some instances be the seat of severe pain, I firmly believe that, so far as concerns the great

majority of these attacks, Professor Kirk's position is correct.

"A good many years ago," says Dr. Kirk in his Health Papers, "we ourselves were set down as suffering from what high authority called angina pectoris, and this idea of our illness we find historically retained as giving the proper title to the disease from which we suffered at that long past time. We were believed then to be suffering from some disease of the heart. It is still said to be usually connected with heart disease, but this is a misleading notion. The trouble is a cramp, and that not of the heart, but of the stomach. At first a rather slight pain is felt at the back opposite the stomach. The pain increases and moves round on the right side. If we observe carefully, we find that the heart is going all right. But the pain increases and is soon dreadfully severe. If again we observe carefully, while we find that the heart is still going right, the stomach is cramped and rolled up like a hard ball. It is this stomach cramp that is giving the dreadful pain. Something that rolls the stomach up into that small, hard ball is acting upon it in this cramping way, and we should find out, if possible, what that is and how it may be removed. As a rule, we find the usual treatment, proving that the persons trying to remedy the evil are entirely ignorant of what is going on in the heart of the patient. For instance, applications of the most irritating character are laid over the heart. Digitalis and similar drugs are given—all to quiet the poor heart that is doing its duty perfectly well. The network of nerves in the stomach is in a bad and irritated way, and these so-called remedies are putting that network into a worse and worse state. The angina is being increased to a fury, and the sufferer is getting so ill, as we remember, coming out of bed in anguish and creeping on hands and knees on the floor trying to get relief in any way. It was at this crisis, when ignorant helpers were at their wits' end as to what to do, that Dr. Hunter and his bathman brought a shallow tub into the room. They poured cold water into this and made us sit down in it. They then laved the cold water on the back, and the angina in about two minutes was gone. We felt dreadfully weak from the pain we had endured, but that pain was gone and the stomach, instead of being like a rigid ball, was soft and as it should be. What had really happened? Simply this: the roots of nerves passing from the back to the stomach had been cooled and had relaxed their hold. The cramp was gone, and the pain had gone with it. The bath would be one of about five minutes of cold laving, drying with a kindly rubbing, and finishing with a little olive oil. After one or two such baths the return of the pain will generally cease. So far as we remember, severe mental strain brought on the attack to which I allude."

Where the shallow bath and laving can not be had, the cold compress laid over the back opposite the stomach, and constantly changed, answers a very good purpose, or the patient may be made to lie upon it. I have often given this treatment and have directed it in several cases of long-time sufferers from this disease, and have seldom been disappointed with the results.

It goes without saying that the stomach, of all the

* Politzer. *Text-book*, first edition (German), p. 693.

bodily organs, is the one most constantly and outrageously abused, and therefore the one subject to the most ailments. This alone would not, of course, settle the question, but it is well to bear the fact in mind in this connection, and also to consider the various causes of derangement of the stomach in order that preventive measures may be employed. Aside from the well-known and generally recognized abuses of the stomach, as overeating, bad eating (the use of unwholesome dishes), cascading ice water into the stomach during meals, the employment of alcoholic beverages, etc., one of the most prevalent errors, especially operative with nervous, brainy men and women who seem never to know when they are tired, is that of eating too soon after exhausting work, and of rushing to their work with little or no repose after eating.

Another grand mistake, and a very common one, is that of eating at all when not hungry, simply because it is "meal time"—an act not one whit less stupid than that of replenishing one's fire because he hears his neighbor's coal-hod rattling, regardless of the fact that there is still plenty of black coal on top, and that any addition thereto would be mischievous. Who has not observed instances of persons who go to the table, meal after meal, day in and day out, only to nibble a little of this or that, generally some sort of dainty dish, but never really knowing the pleasure of a "square meal," nor anything approaching it?

In a brief code of *Health Hints*, formulated by the writer some years ago, after many years of earnest study in dietetics, and which he has found small chance to improve during the past ten years of active practice, the first paragraph reads thus: "Never eat when the appetite is even open to suspicion. To eat without hunger is a species of self-abuse inexcusable for sick or well persons. There is no pleasure in such feeding, and it prevents the speedy return of a normal appetite."

ATHETOSIS.

By T. J. MCGILLICUDDY, A. M., M. D.,

SURGEON TO THE NEW YORK MOTHERS' HOME MATERNITY HOSPITAL.

ATHETOSIS, a variety of post-hemiplegic chorea, was so named and first described by Hammond in 1874, but previously noticed by Charcot as an occasional phenomenon in 1853. It is a continuous rhythmical movement of the fingers or toes and a loss of power to retain them in one position. By most writers it is thought to be the result of degenerative changes occurring in the ganglionic masses of gray matter of the corpus striatum or optic thalamus. It is certainly a rare and interesting condition. Dr. William R. Gowers's paper, On Athetosis and Post-hemiplegic Disorders of Movement, in the *Medico-chirurgical Transactions*, London, 1876, points out that the movements never occur in a limb entirely paralyzed; but how could they? Many of his other observations on these conditions were anticipated by Dr. Weir Mitchell. He also says all these cases of disordered movement are much more common and severe in the arm than in the leg, and the hand is the part most seriously affected. The hand is quieter and sometimes the movement

entirely ceases when it is at rest. The disorder is increased by exhaustion, by cold, and by attempts at restraining it, while



FIG. 1

it is quieted by rest and sleep. This condition often results from slight attacks of hemiplegia, and the essential



FIG. 2

element of athetosis is a "slow, remitting spasm," thus differing from the ordinary post-hemiplegic contracture.

Dr. Bernhardt, in Virchow's *Archiv*, Bd. lxvii, Heft 1, and in the *Deutsche medicinische Wochenschrift*, December 2,



FIG. 3.

1876, gives his observations on athetosis, and describes a case in a lad aged fourteen, a son of strong and healthy



FIG. 4.

parents. The hemiplegic condition came on after a convulsion when he was fifteen months old. He was quite

stupid and could not read; his face showed signs of the paralysis. Sensation on the affected side was impaired, and both fingers and toes were implicated in the movement, the toes to the greater extent. The muscles of the leg were noticed to be hypertrophied.

Athetosis is hardly an independent disease, but the result of diseased conditions. M. Comby, before the Société médicale des hôpitaux in 1887, reported a case in a little girl of twenty months, which had continued since the eighth month. It came on after a violent convulsion, due to indigestible solid food, and was limited to the right side, both hand and foot being involved. It is extremely rare in children. Dr. McLaue Hamilton sees no reason for separating athetosis from other disordered movements of hemiplegic origin.

The accompanying photographs show the successive positions of the fingers in a case I saw in October, 1889. The history taken at that time was as follows:

M. S., aged twenty-three years, unmarried. The athetosis, confined to the left hand, has existed since she was five years of age. She remembers nothing about its advent, and has for a number of years been an epileptic, but does not remember how long, as she is not intelligent. The movements are a continuous closing and opening of the hand; the fingers when flexed require a considerable force to extend them. She seems to have not the slightest control over the movements. The little finger generally comes down on the ring finger (Figs. 3 and 4), and the movement of closing seems to start with the middle finger (Fig. 2). Her face shows hemiplegic signs, although her tongue is protruded straight, and she also slightly drags her left leg. She had been treated by electricity without any appreciable benefit. After I had seen her a few times she disappeared, and I learned a year or two afterward that she was dead, but I could not learn the nature of her disease or if an autopsy had been held.

776 MADISON AVENUE.

TENORRHAPHY,

WITH CLINICAL RECORD OF CASES.

By FRED. B. LUND, M.D.,

BOSTON.

(Concluded from page 342.)

Plastic Operations and Grafting.—Before taking up the prognosis and treatment of injuries of the various classes of tendons in detail, a word ought to be said about what can be done in those cases where a portion of tendon has been removed by the accident, leaving a gap which the surgeon must strive to fill up with tendon tissue, if possible; or cases in which the same untoward result is produced by the necessity of refreshing the ends in secondary suture. One surgeon (Gluck*) claims to have even filled up with new tendon tissue a gap caused by suppurating and sloughing. Where a gap exists, no matter how slight, in the continuity, we should never sew the ends together, under the impression that a slight shortening will do no harm. Any shortening, however slight, of a flexor will be sure to prevent complete extension of a finger, and *vice versa*. It

* *Deutsche med. Wochenschrift*, 1884, No. 48.

is as important to restore the normal length as the continuity of a tendon. We must aim, then, in some way to fill up the gap between the ends, if possible, with tendon tissue—at any rate, with cicatricial tissue, which shall firmly unite the ends, and may in some cases supply the place of tendon tissue.

For the attainment of these objects methods have been devised which may be divided into four classes:

1. Suture of the ends at a distance (the suture being merely to hold the ends in place), and allowing each end to become adherent to the cutaneous cicatrix. When the skin is freely movable, as over the back of the hand, a portion of skin and fascia may be made to supply the place of tendon with excellent result.*

2. A plastic operation, by which a piece of sufficient length may be split out and turned down from one end, as shown in the diagram. Hüter and Czerny have reported



Fig. 5.

successful results from this operation. Necrosis of the flap is not to be feared, although it might seem inevitable from the almost complete isolation from its source of blood supply. If necrosis should occur and our wound were aseptic, the dead tendon might serve as a bridge for the growth of new tendon tissue (like Gluck's bundles of catgut).

3. The method recommended by Gluck of interposing foreign bodies, such as bundles of fine aseptic silk or catgut, to act as a bridge or guide for the growth of new tendon tissue. He reports a successful case in which he thus supplied a gap in the extensor indicis and extensor tendon of the middle finger, extending from the metacarpo-phalangeal joint to the wrist. In the hands of other surgeons, however, the simple suture of the tendons at a distance, so that perhaps two or three threads of catgut ran between the ends, has given better results. Bulky foreign bodies may be rejected even from an aseptic wound, unless a very abundant blood supply affords the means for their encapsulation. In general, it is safer not to leave a large bundle of silk or catgut in a wound. If any foreign body is to be introduced to supply the gap, it would seem a rational procedure to employ tissue of the same character as that to be replaced—namely, tendon. This leads us to the consideration of the fourth method.

4. Implantation of a piece of tendon taken from an animal—grafting.

This method has the disadvantage of requiring a double tendon suture—one for each end of the tendon introduced—and has been rarely done. Successful cases have been reported by Tillaux and Lefort, and Peyrot† reports a case of transplantation of a piece of tendon from a dog, with partial restoration of function. This operation, though inferior to the plastic operation described above, seems to the writer preferable to the introduction of foreign bodies—

silk, catgut, etc. It would seem best in doing this operation to place the sutures in the divided tendon, and also in the piece to be cut out from the heel cord of the dog or other animal before cutting it out, so that when excised it may be immediately placed in position and the sutures tied. We thus avoid unnecessary manipulation of the excised piece, which might result in necrosis. In this manner the writer supplied a defect of two months' standing in the tendo Achillis of a dog, made by excision of about an inch of the tendon. The gap was supplied by implantation of a piece from the heel cord of a rabbit, which was sewed in place with silk in the manner recommended above. The wound healed by first intention, and the tendon united, with perfect restoration of contour and function.

5. Implantation of the peripheral end in a neighboring tendon, thus transferring a part of the action of the muscle belonging to the latter to the former. This may also be adopted in cases where we are unable to find the central end. Although this latter predicament is one which ought to occur very rarely, there are circumstances in which this transference of action may give very good result, as, for instance, the suture of the peripheral end of a severed flexor profundus to the sublimis in the palm, thus enabling the patient to flex the finger. By this means also we can employ the flexor carpi radialis or ulnaris for the purpose of flexing the fingers. Where the extensor of one finger is sewed to that of another, the extension of these fingers independently of each other becomes, of course, impossible. This, however, is a comparatively slight annoyance. The extension of the fore and little fingers may be safely intrusted to their proper extensors, while their portions of the common extensor are employed to take the place of the injured extensors of the other fingers. (Cf. case reported by Wölfler.*) After this brief discussion of the methods of supplying defects in tendon tissue, we come to the discussion of the suture of the different classes of tendons in detail.

Prognosis and Treatment of Injuries to Special Tendons, illustrated by Cases of Tendon Suture done at the Massachusetts General Hospital within the Last Five Years.†—Before beginning this discussion the author must acknowledge his indebtedness to the masterly article of Wolter on *Die funktionelle Prognose der Sehennaht* for the classification of these injuries on an anatomical basis, and to the records of the Massachusetts General Hospital for the histories of most of the cases. The cases presented were all seen by the writer, some of them three or four years after the operation, but for the description of the original injury he had in most cases to depend on the hospital record.

We will first consider the extensors ossis metacarpi, and primi and secundi internodii pollicis.

These tendons offer most favorable anatomical conditions for suture. They run in loose connective-tissue sheaths, and the skin over them is so freely movable that adhesion to it is harmless. Over the metacarpal bone of the thumb the extensors primi and secundi internodii are so firmly united to the periosteum by fibrous bands that retrac-

* Cf. Huger. *Centralblatt für Chirurgie*, 1875, p. 384.

† Peyrot. *Bull. de la Soc. de chirurgie*, 5 mai 1886.

* *Wiener klin. Wochenschrift*, 1888, No. 1, S. 1.

† Reported by the kind permission of the visiting staff

tion is possible only to the extent of about one centimetre, as in shown both in life and by experiments on the cadaver. Over the wrist joint, however, these tendons may retract from six centimetres (Czerny) to ten centimetres (Duplay).

Wolter reports four successful cases of suture of one or both of the extensors of the phalanges of the thumb, in all of which perfect restoration of function was attained. The very short time of recovery in two of his cases (twenty days) he ascribes to the method of treatment by the "moist blood clot."

The writer reports two cases:

CASE I.—(History from hospital record.) P. S., laborer, aged thirty-one years. Transverse cut of right wrist two inches and a half long across the anatomical snuff-box, made by broken glass. Radial artery and tendons of extensor ossis metacarpi and primi internodii pollicis cut squarely across. Radial tied with silk. Longitudinal incision half an inch long over the tendons made to find the central ends, which had retracted. Silk suture of tendons and skin. No drainage. First dressing three days later.

One month later seen by the writer. Scars of wounds as described. Extension of thumb normal. No adhesion of tendons to skin.

CASE II.—J. P., aged thirty-one years, laborer. Transverse cut of right wrist across anatomical snuff-box, made by a razor. Extensors ossis metacarpi, primi and secundi internodii pollicis divided. Retracted ends found by a longitudinal incision about an inch long over the tendon. Suture with silk. No drainage. Hand dressed in a position of extreme extension and held so by a splint with a roller bandage placed on the back of the wrist directly over the wound as shown in Fig. 6. First dressing



FIG. 6.

three days later. No pain; apparently first intention. Considerable oedema of back of hand, probably due to pressure of the roller bandage. Fifth day: Has complained of considerable pain. Marked oedema and tenderness about wound. Suppuration in the angle between the two incisions, slight and limited to this position. Roller removed from wrist; moist corrosive dressing daily. On sixth day the small opening at the angle of the wound was enlarged with scissors, permitting free escape of pus. After granulating for two weeks the wound healed.

Two months later the patient had perfect restoration of function, the skin moving only slightly with the tendons. It is an interesting point in this case that perfect restoration of function took place in spite of suppuration. This resulted merely in adhesion to the cutaneous cicatrix, which in these cases does not interfere with function. Duplay* reports a similar case, which was successful in spite of suppuration. Heuch reports a case of an operation in which the cutaneous cicatrix was made

to fill a gap in the tendon of the secundi internodii pollicis, with perfect restoration of function.

Case II also illustrates well the point made by Schüssler that the hand should not be dressed in a position of too extreme flexion or extension, owing to danger of interfering with the circulation and therefore with the healing of the wound. In the writer's opinion, the suppuration in this case was due to the pressure of the roller bandage directly over the angle of the flaps, causing necrosis.

Suture of the Extensor Communis Digitorum and Extensor Indicis over the Back of the Hand.—As we have noted above, suture of the extensors over the back of the hand has an especially favorable prognosis, and it is also in this region that plastic operations, etc., upon tendons are done with the greatest hope of success. The skin is here freely movable, and the tendons run in loose connective-tissue sheaths, formed by a reduplication of the deep fascia, these sheaths being themselves freely movable, on the one hand, under the skin, and on the other over the metacarpal bones. This deep fascia can, in thin persons, be seen to move *under* the skin and not *with* it, as Wolter has noted. The connection of the tendons with the deep fascia which forms their sheath is so intimate that in cases where a short transverse cut divides the tendon alone the ends are held in apposition. When the fascia is divided with the tendon by a cut, say four centimetres long, the central end will retract only about two centimetres. The fascia here holds the tendon so firmly that in cases of suture we have rarely to apprehend trouble from tension on our sutures. There is hardly an unfavorable accident to apprehend if care be taken in the treatment of these cases, except, of course, where there is a simultaneous fracture of a metacarpal, when there is danger of adhesion of the tendon to the callus. This may, however, be in most cases arrested by persistent massage and exercise of the part.

Moorgue,* Tillaux,† and Notta have reported cases where the tendons healed without adhesion to the cutaneous cicatrix.

Successful secondary suture of these tendons was done in preantiseptic days by M. A. Pettit,‡ Sedillot,§ and Velpeau.

Anger|| successfully united the separated ends by a cutaneous cicatrix in a case of secondary suture. Moorgue and Pollaillon^ have reported cases in which the tendons did not adhere to the skin in spite of suppuration. In the cases of Pettit and Sedillot, referred to above, the suture (secondary) was successful in spite of suppuration. Kottman had a good result in a case complicated by fracture of two metacarpals. Gluck's famous case of replacement of

* Moorgue. *Rev. thérap. du Midi*, xi, p. 103, février 1857.

† Tillaux. *Bull. de la Soc. de chir.*, ix, 10, 1876, p. 788.

‡ M. A. Pettit. *Mat du cœur*, Lyon, 1806, p. 320.

§ Sedillot. *Gaz. hebdom.*, i, 4, 1853.

|| Anger. *Centralblatt für Chir.*, 1875, S. 384.

^ Pollaillon. *Gaz. des hôpitaux*, No. 122.

* *Bull. de la Soc. de chir.*, t. ii, 10, 1876.

tendon by aseptic catgut from the wrist to the metacarpophalangeal joint was done upon the extensors over the back of the hand; and the cases might be multiplied.

The following cases of suture of these tendons came under the writer's observation. Two of them are of interest as being complicated with fracture of the metacarpals and crushing of the soft parts (Cases V and VI):

CASE III.—T. M., laborer. Extensors of middle, ring, and little fingers of left hand divided by a cut with broken glass over the back of the hand. Suture with silk. Quill drainage. Passive motion in four weeks. Seen by writer after six months. Function in all the fingers normal. Tendons move independently of skin except that of the little finger, where the cicatrix is slightly adherent. Patient says that three small pieces of glass were removed from the wound at this point.

CASE IV.—E. F., carpenter, aged twenty-seven years. Extensor communis of middle finger and extensor indicis cut by a glass globe falling on the back of the hand. Opening on the back of the hand enlarged. Ends of tendons united by silk sutures. Wound sutured without drainage. Seen by writer after four years. Complete restoration of function. Independent extension of fingers. Skin adherent to cicatrix. Patient says he was able to work six weeks after the accident.

The above-given cases are examples of the usual result in these cases. We may note that one was treated with and the other without drainage.

CASE V.—J. K., aged thirty years, printer. Lacerated and contused wound of back of right hand caused by hand being caught in a printing press. Wound extends from near distal end of first metacarpal to near proximal end of fifth. Compound fractures of all the metacarpals along this line. Extensor tendons of index and ring fingers divided. Crush of soft parts of ball of thumb. Mass of ragged muscle removed from adductor side of thumb. Tendons approximated with silk sutures. Skin flaps drawn loosely together with silk. Drainage-tube. Moist corrosive dressing. Stitches and tube removed after six days, no suppuration having taken place. Two weeks later the patient was discharged, to be treated in the out-patient department. Seen by writer after two years. Flexion of fore, middle, and ring fingers almost normal. Extension normal. Hand is strong and patient is perfectly able to do the work of a printer, a trade requiring accurate and independent movement of the fingers.

CASE VI.—J. S., aged fifteen years, press feeder. Ragged tear across dorsum of left hand, caused by its being caught in a printing press, about four inches long. Compound fracture of second and third metacarpals. Carpo metacarpal joint opened. Soft parts badly lacerated. Two superficial cuts over palm of hand. Hand considerably swollen. Tendon of common extensor of index finger severed. Wound thoroughly irrigated with biniodide solution. Tendon sutured with fine silk. Small rubber drain into joint. Suture of wound. Splint and dry dressing.

Next day considerable pain. Temperature, 102°. Redressed. Hand found puffy and palmar stitches tense. Tense stitches loosened and back of hand scored, allowing escape of blood. Pain much relieved.

Five days later, tube out.

Fifteen days later, healed except granulations along dorsum. Slight motion in fingers. Discharged to out-patient department.

Seen by writer one year after injury. Large callus over proximal end of first and second metacarpals. Movements of

fingers normal, except that forefinger can not be completely extended, but droops a little. Patient does his work as a press feeder and is not inconvenienced by the droop.

Cases V and VI are of especial interest as showing what can be done where we have to deal with fracture of bones and laceration of soft parts, and emphasize the fact that tendons should be sutured in cases of the most complicated injury, where the wound has to be treated as an open one. In Case V there was no adhesion between the tendons and the bone callus, and in Case VI it was but slight.

These cases may well be contrasted with a case seen by the writer of section of the extensor tendons of the index finger by a cut with glass. The patient was a painter. The ends of the tendons could be felt adherent to the cicatrix and separated about two centimetres. Flexion of the finger was normal, but extension only about two thirds normal. The finger hung down so as to constantly interfere with the patient's use of the hand. This is a very typical result of an untreated section of an extensor. Secondary suture would probably insure perfect restoration of function.

Suture of Extensor Tendons over the Wrist.—The prognosis is not as good in these cases as in those last discussed for two reasons: First, that the tendons here run in a stiff-walled synovial canal, and, second, because they lie so close together that adhesions are apt to result. The tendons here move fully four centimetres in passing from complete flexion to complete extension, so that adhesion between the tendon and any immovable structure will have a very bad effect. Wolter reports a case, however, in which he secured perfect restoration of function. The moist blood-clot method was employed. There was no reaction, the dressing was changed in three weeks, and passive motion begun in four. The tendons sutured were the extensors ossis metacarpi and primi internodii pollicis, extensor carpi radialis longior and brevior, extensor secundi internodii pollicis, and extensor indicis.

Suture of Extensors over the Metacarpophalangeal Joint.—The prognosis is especially favorable. The tendon is so firmly attached to the joint capsule that unless the joint be opened retraction can not take place. In case the joint is opened retraction takes place only to the width of the wound. Even in this latter event, however, the ends of the tendon can be brought into apposition by strongly extending the fingers. Without the opening of the joint the suture is extremely simple, and if the joint be opened it is not a serious complication. In a case complicated in this manner, Wolter employed the moist blood-clot method and obtained a perfect result. If suppuration takes place in the joint cavity, adhesion and stiffness of the joint results, as happened in one of Wolter's cases.

Suture of Extensors over the Phalanges and Interphalangeal Joints.—Here the tendons, increased in width by accretions from the interossei and lumbricales, glide freely under the skin and over the periosteum. Over the phalanges the skin is very slightly movable, over the interphalangeal joints it is necessarily looser. In flexors, even the skin over the joints is tightly applied. The skin is firmly united to the sheath of the tendon and the capsules

of the joints. It is to be noted that here the tendons themselves complete the capsules of the joint, so that section of the tendon implies opening the joint. Flexion and extension are possible only provided the tendon can move freely under the skin and over the periosteum, so that adhesions to these structures prevent a functional success. The tendons move only about half a centimetre in passing from flexion to extension, so that very slight limitation of motion will have great effect upon function. If these tendons are not sutured, active extension of the distal phalanges becomes impossible and flexion more limited as time progresses (Segond,* Busch †). If the tendon be sutured and the finger be kept for a long time in a position of extension, good results may be obtained, especially in suture opposite the first phalanx. With crushing of the soft parts and bones, however, we are apt to get adhesions which interfere greatly with the recovery of function. Any shortening of the tendons (refreshing the ends) is fatal to success. Wolter reports three cases. In one of them the bone was uninjured and partial recovery of function resulted. In two of the cases, in which the bone was broken, the result was poor.

CASE VII.—D. M., aged about thirty, carpenter. Extensor of middle finger severed by a knife-cut over the second phalanx. Sutured with silk. Suture of skin wound. Finger dressed with phalanges extended. Slight suppuration followed and the suture was extended. Four weeks later the wound was healed. The finger can not be completely extended and only partial flexion is possible. Functional result poor.

Suture of Flexor Tendons over the Wrist.—We have here to deal with two classes of tendons which may be called the superficial and the deep. The superficial set run in loose connective-tissue sheaths outside the annular ligament, and include the flexor carpi radialis, palmaris longus, and flexor carpi ulnaris; their sheaths are formed by a reduplication of the superficial fascia, from which the flexor carpi ulnaris has a partial origin. The deep set include the flexor sublimis and profundus digitorum and flexor longus pollicis, and run under the annular ligament close together in a common synovial canal. The superficial tendons glide only about a centimetre and three quarters in performing their function, and when severed retract about the same distance. The flexors of the fingers, however, have a motion of about two centimetres and a half, and retract the same distance. The superficial set are provided with an efficient aid to repair in their vascular sheaths of connective tissue, and may form adhesions to the skin without greatly affecting their functions; the deep set have no vascular sheath and lie so closely packed that they are in great danger of forming adhesions to each other and to the walls of their synovial canal, both of which are extremely prejudicial to function. The prognosis is therefore far better in injuries to the superficial than the deep set of tendons. The prognosis is also impaired by the fact that in all deep wounds of the wrist the median or ulnar nerve is apt to be divided. Suture of these nerves, however, has given excel-

lent results. Wolter reports a case of suture of the palmaris longus, flexor carpi radialis, and flexor carpi ulnaris, in which recovery of function was almost complete in seven weeks; a case of suture of all the tendons on the front of the wrist, except the flexor profundus, in which one half the normal mobility was recovered (the median and ulnar nerves were also sutured); a case of primary suture of the ulnar nerve and the tendons of the palmaris longus and flexor carpi ulnaris, followed eleven weeks later by suture of the tendons of the sublimis, with only partial recovery of function; two cases of primary suture of the third and fourth tendons of the sublimis—one treated by drainage and the other by moist blood clot. In the latter case complete recovery of function resulted in four weeks; in the former it was almost complete in forty-four days. It is in just these cases where the tendons run in long synovial canals that Wolter considers the treatment by moist blood clot to be of the greatest importance. The following cases are none of them uncomplicated suture of these tendons, but are of interest from the extent of the complications.

CASE VIII.—J. K., dry-goods clerk. Secondary suture of median nerve, tendon of flexor carpi ulnaris and ulnar nerve, with fine silk, by means of two longitudinal incisions of about two inches—one over the median and the other over the ulnar nerve. The section of the ulnar nerve had resulted in considerable atrophy of the interossei, and in the hand being held in the "claw" position. Sensation had completely returned in three weeks. Four months later, under treatment by massage and electricity, he had obtained complete flexion and almost complete extension of the hand and fingers. One year later he is perfectly able to attend to his business, and is not troubled at all by his hand. An excellent result of nerve suture.

CASE IX.—J. H. McG., aged eighteen, mechanic. Left wrist struck by the blade of a Sturtevant blower. All the tendons on the front of the wrist divided except the deep flexor of the little finger. Radial artery and median nerve divided. Compound fracture of radius and ulna. Ulnar artery and nerve not injured. Compound fracture of last phalanx of thumb. Hand hanging by the skin and tendons of the back of the wrist. Under ether, and with careful antiseptic precautions, Dr. Conant sutured all the severed tendons and the median nerve. Terminal phalanx of thumb amputated and wound closed without drainage. Hand dressed in a position of flexion of the wrist and fingers. Wound healed by first intention throughout. One month later sensation had returned except on the radial side of the forefinger. Slight motion of all the fingers possible, but apparently due to the action of the interossei in great part. Tendons at wrist, however, move slightly, and the adherent skin to move with them. Union of bones firm. Considerable callus. Six months after the injury the sensation was perfect, the movements of the thumb good, and patient can approximate the thumb and forefinger. Flexion and extension of the fingers about one half normal. Tendons move more freely under the skin.

The above result shows what it is possible to do in one of the severest types of injury which is ever presented to the surgeon. We had here a suture in an unfavorable region, and with every possible untoward complication, fracture of bones, laceration of soft parts, and division of nerves. The treatment was without drainage, and the fact that healing took place by first intention was of the greatest importance to the result.

* Segond. *Progrès méd.*, 3 juillet 1880.

† Busch. *Centralblatt für Chirurgie*, 1881, No. 1.

CASE X.—M. F., bank cashier, aged sixty-five. Right wrist injured by broken window glass in a railway accident. Ulnar artery wounded and an attempt made to tie it before he was brought to the hospital, which was unsuccessful. Brought to the hospital five hours later. Lacerated wound of right wrist (ulnar half) about an inch and a half long, just above the styloid process of ulna. Ulnar nerve, flexor carpi ulnaris, and the three inner tendons of the flexor sublimis divided. Proximal ends retracted. Under careful antiseptic precautions an incision three inches long was made in the middle line of the arm, parallel to the tendons. The ends of the tendons and nerve were found by careful dissection, brought into good position, and sewed with catgut. A rubber drainage-tube was inserted and the skin sewed with silk. Two days later the drainage-tube was removed. One week later there was evidence that one of the tendons was sloughing. Fair sensation present in the fingers supplied by the ulnar nerve. Discharged to the out-patient department. Two months later the arm had to be incised to permit the escape of pus and sloughing tendon. Exactly how much tendon sloughed could not be ascertained.

Seen by writer after fifteen months. Wrist held in the position of palmar flexion and fixed there by adhesions. Fingers held in position of extension of first phalanx, and slight flexion of the other two. No motion at wrist or at interphalangeal joints. Slight motion at metacarpophalangeal joints of fore and middle fingers. Good motion of the thumb. Skin of fingers bluish and shiny. No sensation over area supplied by ulnar nerve. Atrophy of interossei.

The above-given case is a good illustration of the results which follow suppurative along the course of the deep tendons on the front of the wrist. In this region we can not hope, as over the back of the hand, for good results in spite of suppuration. Necrosis and sloughing of the tendons are almost inevitable, on account of the synovial sheaths furnishing such an easy road for infection. Adhesions will result where we are fortunate enough to escape sloughing. The wrist joint in this case is probably ankylized; at any rate, it is so held by the agglutination of the tendons under the annular ligament that the same condition results. Owing to the unfavorable situation, the hope of success of a secondary operation to dissect the tendons free from their adhesions would be very slight. The evidence of ulnar paralysis shows that the suture of the ulnar nerve was ineffectual. A plastic or other operation to restore the gap in the nerve or tendon in a man sixty-five years of age would give small hopes of success. Whether the drainage-tube was the offending agent in this case it is difficult to say. At any rate, the drainage-tube offers a possible route for infection, and necessitates frequent dressings, both of which are prejudicial to our results. There is good reason to think that the handling which the wound received at the scene of accident, in the unsuccessful attempt to tie the ulnar artery, may not have helped toward an aseptic result.

Suture of Tendons in the Palm.—In the palm of the hand the conditions for suture are far more favorable than at the wrist. The pairs of tendons run separate from each other in their sheath under the palmar fascia. They are connected with each other and with their sheath by a layer of loose connective tissue. The sublimis here retracts about three centimetres, the profundus about two centime-

tres. If the tendons here be left unsutured, the affected fingers can not be flexed at the interphalangeal joints, and very slightly at the metacarpophalangeal (interossei and lumbricales). Adhesion of the tendon cicatrix to the skin, which is here held by the firm palmar fascia, is extremely prejudicial to the result. It is to be avoided by securing first intention and by careful and thorough passive motion, also by making our cutaneous incision not over but parallel to the tendon, as suggested by Sedillot and emphasized by Witzel. A comparison of Cases XI and XII will show well the difference which suppuration makes in the prognosis. Wolter reports a case of secondary suture in this situation, with a fair result, somewhat affected, however, by adhesion to the skin.

CASE XI.—J. J. S., aged twenty-six years, brass founder. All the flexors of the fingers of the left hand in the palm cut by the pointed tool of a brass-turning lathe. Transverse wound of palm. Ends of all the tendons in the palm found by Dr. Porter, except the central end of the deep flexor of the little finger, and marked by sutures. Vessels tied with catgut. Tendons either sutured or the loose ends of the marking sutures tied up snug. Short tube in palm. Silk skin sutures. Lister gauze and absorbent dressing. First dressing three days later. First intention. In three weeks slight motion of fingers. Passive motion not begun for five weeks.

Seen by writer three years later. Perfect and independent flexion and extension of the fingers. Cicatrix in palm a mere line. No adhesion of tendons to cicatrix. Patient went to work six months after the accident, and has ever since been perfectly able to do his work as a brass finisher. Result perfect.

CASE XII.—W. W., aged about twenty-five years, railroad. Cut by falling on a piece of broken glass. Transverse cut of right palm, near ulnar side, about an inch and a half long. Unable to move little and ring fingers. Under ether, superficial and deep flexors of ring and little fingers found to be severed. A longitudinal incision, about four inches long, was necessary in order to find the proximal ends. Sewed with silk by quilt suture. Ten days later the wound looked well, and the patient was discharged, having slight motion of the affected fingers.

When the patient reported to the out-patient department a small suppurative sinus was found in the angle of the wounds. After some weeks a small piece of iodoform gauze was extruded and the suppuration stopped. Six months later the fingers were held in a position of partial flexion. Active motion possible only through an arc of about 20°.

Two causes evidently contributed to secure this poor result—first, the long suppuration; second, the long incision required to find the retracted ends.

CASE XIII.—E. B., aged thirty-three years, shoemaker. Short incised wound in palm of right hand, one day old, made by broken glass. Superficial and deep flexors of ring finger found to be divided. The transverse incision was slightly enlarged, and the retracted central ends easily found by a short longitudinal incision, the old blood clot serving as a guide. Ends of tendon united by catgut sutures. Palmar arch tied. Wound closed by interrupted silk sutures. First dressing in five days. First intention.

Seen by writer after a year. Extension perfect. Flexion almost complete, but finger can not be quite doubled into palm. Patient says his power of flexion is still improving. Functional result good.

Suture of the Flexors over the Fingers.—Here each tendon runs in a separate synovial canal, with firm, unyielding walls. Retraction is, however, slight, because the tendons are bound to the joints by fibrous bands—the vincula tendinum. Retraction is greatest over the first phalanx, where it may amount to one or two centimetres. Owing to the fact that the sublimis is inserted into the second phalanx, it can hardly retract at all when divided there. The profundus is also so firmly adherent that retraction of only about one centimetre takes place. Over the second phalanx the tendon sheath fits more closely than over the first, so that here there is more danger of adhesions. According to Volkmann,* when these tendons are severed, whether they are sutured or not, the function is almost invariably destroyed by adhesion to the sheath or the bone. Nevertheless, Wolter reports three cases of suture opposite the first phalanx, with complete recovery of function. In three cases of suture opposite the second phalanx he secured active flexion of the second phalanx in only one case, and of the terminal phalanx in none. He reports, however, a very interesting case of secondary suture of the flexors opposite the second phalanx of the right index finger in a pianist. Active flexion of the terminal phalanx was before the operation impossible. The injury was a cut with broken glass three months before. Dr. Cordua operated, finding retraction of about one centimetre. The ends were dissected free from a mass of adhesions, and two catgut sutures employed for each tendon. Blood clot. First dressing in three weeks. The final result was a complete restoration of the power of flexion of the index finger.

Madelung† also reports a case of suture opposite the second phalanx where flexion of the terminal phalanx was restored. He employed his own method of making a separate incision to find the retracted end, which we have described above. For obvious reasons, it is the method *par excellence* for the flexors opposite the phalanges, as it involves the least wounding of the sheath and consequent danger of adhesion.

CASE XIV.—Wife, aged twenty-four years. Both flexors of forefinger of right hand cut by a bread knife opposite the first phalanx. Flexion of two other phalanges impossible. Cocaine. Central ends found retracted about one centimetre by a longitudinal incision. Silk suture. Primary union. At fourteen days slight flexion of the terminal phalanges was possible. The finger was fully and violently extended by an incautious dresser, causing great pain to the patient, undoubtedly rupturing the adhesions which held the ends. No active flexion of the terminal phalanx resulted.

This case illustrates well the result of unskilled handling of these cases, but throws no light on the prognosis of a properly treated case. The cases of Cordua and Madelung should lead us, however, to attempt suture in these cases, for they prove that, with the greatest care and in favorable cases, good results may be obtained.

Suture of Tendons over the Dorsum of the Foot.—Here, as over the back of the hand, we find every condition favor-

able for suture. Connective tissue forms the sheaths, and the skin is movable. Retraction of four centimetres is possible; beyond this it is prevented by the bands of connective tissue which unite the tendons to the skin and deeper parts. Wolter reports two cases—one of suture of the tibialis anticus and one of the extensor longus hallucis, both with good result.

CASE XV.—R. E., aged eleven years. Transverse lacerated wound of anterior part of left leg just above the malleoli, made by a mowing machine. Tendons of tibialis anticus, extensor longus pollicis, extensor communis digitorum, and peroneus tertius severed and ends somewhat separated. Tendons united with catgut sutures and wound closed with interrupted silk. First intention. Two months later extension of the ankle and of all the toes except the great toe was normal. The latter could not be extended. Four months later the great toe could be partially extended, and the patient says it is still improving.

The case is interesting as illustrating the fact that we can not pronounce upon these cases within a month or two after the operation; but that a result which seemed poor at first may present a totally different aspect in a year or two.

Suture of the Tendons of the Quadriceps Femoris and Ligamentum Patellæ.—Rupture of these tendons, like fracture of the patella, is usually subcutaneous, and the result of muscular action. The question of suture is an interesting one upon which there is not enough evidence to form a definite conclusion. So far surgeons have manifested marked reluctance to make these injuries compound, considering that the dangers of this method offset its obvious advantages of shorter time of treatment and more perfect apposition. We can not help thinking that the suture of these tendons will in time come to be recognized as the regular surgical procedure. Certainly it is less dangerous than wiring the patella, which is a procedure now often adopted in simple fracture.

Suture of the Tendo Achillis.—Whether in any given case of section of the tendo Achillis we should undertake suture will depend upon whether it has been severed within three centimetres of the calcaneum (in the adult) or above that point. From the lower end of the tendon as far as this point are given off strong fibrous bands running to the upper anterior surface of the calcaneum. In section of the lower end of the tendon, these will permit a retraction of more than one centimetre—a distance so slight that the ends can be brought into apposition by strong plantar flexion of the foot, so that suture will be superfluous (Mitchell).* In section of the tendon above this point the central end will retract four centimetres, and sutures should be employed to hold it in place. Unless this be sutured, the separated ends become fixed and adherent; the patient can not flex the foot, and must walk with lameness and difficulty. Syme,† Debove,‡ and Annandale* have reported good results from secondary suture in these cases. Wolter

* Mitchell. *Philadelphia Medical and Surgical Reporter*, xi, p. 233, 1879.

† Syme. *Archiv. de méd.*, 1837.

‡ Debove. *Bull. de therap.*, 75, p. 228, 1868.

* Annandale. *Lancet*, i, 18, May, 1877.

* Pitha and Billroth, ii, 21.

† *Centralblatt für Chir.*, 1882, S. 1006.

TENDONS SUTURED.	Cases.	Complications (fractures of bones, etc.).	Suture material.	Drainage.	Healing of wound.	Adhesions.	Functional result.
Extensors of thumb (2).....	I	Absent.	Silk.	Not employed.	Aseptic.	Absent.	Normal.
	II	"	"	"	Suppurated.	Slight.	"
	III	"	"	Employed.	Aseptic.	"	"
Extensors of fingers over back of hand (3) ..	IV	"	"	Not employed.	"	Present.	"
	V	Present.	"	Employed.	"	Slight.	Good.
	VI	"	"	"	"	"	Partial.
Extensors over fingers (1).....	VII	Absent.	"	Not employed.	Suppurated.	Present.	Poor.
Flexors of wrist (superficial) (1).....	VIII	Present.	"	"	Aseptic.	Absent.	Good.
	IX	"	"	"	"	Present.	Partial.
Flexors of wrist (deep) (2).....	X	"	Catgut.	Employed.	Suppurated.	"	Poor.
	XI	Absent.	Silk.	"	Aseptic.	Absent.	Normal.
Flexors in palm (3).....	XII	"	"	Not employed.	Suppurated.	Present.	Poor.
	XIII	"	Catgut.	"	Aseptic.	Absent.	Good.
Flexor over finger (1).....	XIV	"	Silk.	"	"	"	Poor.
Extensor over foot.....	XV	"	Catgut.	"	"	Present.	Good.

also reports a case of secondary suture of this tendon which was successful.

Table of Cases reported in this Paper.—In order to show more plainly still the good prognosis which attends tendon sutures in general, the writer appends the above tabular view of the cases which have been discussed above in detail. A good result in eleven out of fifteen cases indiscriminately chosen certainly argues well for the operation of tenorrhaphy, and stigmatizes its non-performance in any cases where tendons are divided and the member be not absolutely crushed to an extent that amputation is the only alternative.

Besides those points which have been sufficiently emphasized in what precedes, this table brings out the following points of interest:

In our series of fifteen cases silk was employed in twelve and catgut in three. Drainage was employed in five cases. In eleven cases the wounds healed aseptically, in four they suppurated.

In five cases the normal function was restored; in four cases almost normal (good) function was restored; making nine cases in which the results were excellent—in one (Case II, an extensor suture), in spite of suppuration; in two others (Cases V and VIII), in spite of complications.

Of the four cases which suppurated, the result was poor in three.

Of the five complicated cases the result was good in two, partial in two, and poor in one. Besides the nine cases in which the result was excellent, we have, then, two in which partial success was attained, making in all eleven successful cases.

122 MARLBOROUGH STREET.

The New York Hospital Training School for Nurses.—

A reception was given by the graduating class on Saturday evening, September 30th. The class consisted of Miss Agnes L. Witbeck, Miss Annie B. Duncan, Miss Mary M. Goodrich, Miss Marie A. Vreeland, Miss Christine Wetmore, Miss Rose A. McKay, Miss Elizabeth D. Holt, Miss Florence M. Linton, Miss Hessie J. Dickson, Miss Sarah L. Gladwin, and Miss Edith S. Saunders.

The Society of Medical Jurisprudence.—A paper entitled Legal Dogmatism on the Subject of Insanity is announced to be read at the next meeting, on Monday evening, the 9th inst., by J. Hampden Dougherty, Esq.

CELLULAR THERAPY:

ITS PRACTICAL ADAPTATION
IN THE RATIONAL TREATMENT OF DISEASE.*

By JOHN AULDE, M. D.,
PHILADELPHIA.

THE general practitioner as well as the specialist in this last decade of the nineteenth century, with all the knowledge that science and skill can command, from the nature of his environment, is still handicapped in his efforts to control and modify disease. And yet, with the wonderful achievements of the recent past in demonstrating the realities which are responsible for the spread of illness, many of the remedial measures of to-day differ but slightly from those in vogue a quarter of a century or more ago. Admitting as true all the well-grounded observations which science has placed at our command relating to the microbic origin or causation of disease, except in the domain of surgery, but little has been accomplished in the matter of arresting or mitigating the mephitic influence of these micro-organisms and their products when once fairly entrenched within the system.

The physician of to-day is confronted by a condition, not a theory; at most critical periods he finds his therapeutic resources inadequate and unsatisfactory, and lapses into blind empiricism, because, forsooth, his study of remedial agents has been conducted through a series of labyrinthine channels or bypaths which shed no light upon the natural method of investigation. Just as a squad of Western horsemen, galloping along the banks of a treacherous mountain stream to escape the dangers of a rushing torrent at their heels, have no conception of the auriferous particles mingled with sand and dirt thrown in their faces by the frightened and fleeing steeds, so the ordinary physician appears to be utterly oblivious to the sterling worth of physiological truths brought to his attention every day, and at times in sufficient number to almost blind him.

The physician is naturally led away from the proper study of remedies by reason of his disposition to study and seek *results* rather than to critically inquire into *methods by which results are obtained*; hence nearly all general practitioners have erected for themselves a medical super-

* Read before the Mississippi Valley Medical Association at its nineteenth annual meeting.

structure which often rests upon an exceedingly unstable foundation. The thorough clinical study of any well-known representative drug whose physiological action has been determined would not only be a blessing to humanity, but would prove a revelation to the observer and would go very far toward re-establishing confidence in therapeutics as a science. It is my purpose, therefore, in the following remarks to direct your attention to the therapeutics of the cell, or *cellular therapy*, briefly pointing out its practical adaptation in the rational treatment of disease.

Disease, as seen by the physician, is either organic or functional. In nearly all functional cases symptomatic treatment will be sufficient to relieve; but, in order to advise symptomatic treatment to advantage, we must have a tolerably correct knowledge of the physiological action of the remedies employed. What might be termed heroic treatment will apparently succeed in many instances, but too often these heroic methods, while they smother the ailment for which they are given, leave the condition of the patient worse than at the beginning. The surgeons have learned that opium to relieve pain may prove most unfortunate, but physicians seem slow to appreciate this important and significant truth.

When speaking of the need for understanding the physiological action of medicines, I do not mean the gross symptoms or the toxic symptoms, but rather the manner and order in which the various symptoms are produced; the incidental effects, both mental and physical, together with the microscopic effects as shown by an autopsy. In addition to this, however, must be considered the unseen effects, both during life and after death; but for the present it will be sufficient to confine the discussion to effects that will permit of physical demonstration or those which properly come within the scope of clinical medicine. Our knowledge of disease processes and our perception of the remedial value of therapeutic agents are practically determined when we have demonstrated the metabolic changes produced in the living cell, but there are influences above and beyond this which finite minds are unable to comprehend or calculate. It is but a few years since Edison astonished the civilized world by sending two telegraphic messages over the same wire at the same time, but his next achievement was even more wonderful—namely, that of sending two messages over the same wire in each direction at the same time; and the end is not yet, as we learn that the next step will be sextuplex and octoplex systems taking the place of duplex and quadruplex. Dolbear maintains that seventy-two messages can be sent over the same wire—thirty-six in each direction. Notwithstanding these marvelous results, they are as nothing compared with the possibilities of the human nervous system—possibilities which we have no ability to estimate or compute.

Dr. Hodge has recently made some interesting experiments with a view to determine the effects of exhaustion and stimulation upon the nervous system of bees, and it now remains for the experimental physiologist to tell us the influence which disease products and therapeutic agents exert upon the nervous system of the human economy, meaning by this the effect upon the nerve cell. In

the case of many familiar and popular remedies, while we know the characteristic changes which they produce in the cell structure and upon the tissues as a whole, our knowledge is practically limited to these physical facts, and the effect upon the nerve supply of the tissues involved continues as profound a secret as if hidden in the pages of a sealed book. Doubtless, when science shall have reached this period, the mortality rates from disease will be materially reduced, and that from medication entirely disappear. Evidently the signs of the times point to a revolution in methods of treatment, although we must expect opposition from agitators until the dawn of the millennial period.

We know that external as well as internal impressions are conducted along the nerve paths with incredible speed, not one, but many, and still we are unable to trace the effects of this "action" by any known process or method of investigation. Nor can we demonstrate the molecular changes taking place in the wire after the transmission of the electric current, impulse, force, manifestation, or whatever we are pleased to term it. In the case of disease, for example, we may study the subjective and objective manifestations of a concealed poison upon the nervous system, and, from our knowledge of physiological action, may introduce a remedy which, for the time, controls the abnormal condition present; but this is a method superficial in the extreme, since it takes no account of the original cause, nor of the actual changes produced in the nerve supply by the derangement of function.

In the successful treatment of typhoid fever by cold baths—without the employment of drugs—we are furnished with a modern instance of the absolute helplessness of the physician were human life solely dependent upon his theoretical confidence in medicine. In view of the fact that this hitherto fatal malady may be brought to a successful termination independent of those skilled in applying the *materia medica*, one is disposed to question the propriety of exhibiting medicines in any disease. Indeed, the mortality rates have been so great under routine treatment and so small under treatment by cold baths that the intelligent public might reasonably assume that the usual methods were fraught with danger. Nevertheless, the successful treatment of typhoid fever by cold baths, although it lifts a cloud from the medical horizon, brings us no nearer to a solution of the most important question of all—viz.: How are the favorable results brought about? What is the nature of the internal mechanism which enables the economy to withstand and finally eliminate the poison which is assumed to be responsible for the disease? To the reflective mind the answer must come as it has come to me—namely, that the vitality of the system and its ability to resist disease depend upon the integrity and function of the living cell.

I need not invite your attention to the fact that plants, like animals, have cells, but no nerves; but it would be well to bear this in mind, as its importance will appear when we begin to consider the special properties of different remedial agents. It will suffice to note that the epithelial cells lining or covering the mucous coat of the intestine ex-

exercise an important function in the matter of preventing the absorption of poisonous products from the alimentary tract, and whatever contributes to maintain their nutrition enhances the welfare of the entire economy. Admitting these premises and the correctness of the conclusion, one can see with half an eye the wonderful lesson taught by hydrotherapy in typhoid fever, because the functions of these cells are not arrested by the local action of extraneous poisonous products, while their nutrition is distinctly improved by reason of the cold bath sending a surplus of blood to the abdominal vessels, to be returned again to the periphery, and thus the absorption of the products of micro-organisms is reduced to a minimum. Instead of the cold bath, therefore, credit should be given to the living cell for the revolution which has taken place in the method of treating typhoid fever, the bath being recognized as an important auxiliary.

There are two remedies which, from their almost universal employment and frequent abuse, might well form the text of an elaborate contribution, since they possess the property of modifying metabolism in a most remarkable manner. I refer to arsenic and mercury. Both have a prompt and profound influence upon the nervous system when introduced by inhalation; and when taken internally in substantial doses they produce serious tissue changes that are more or less permanent. The fact that they are both active protoplasmic poisons has been overlooked or discounted by the great mass of practitioners; hence the frequent and increasing list of ailments which may be traced to mistaken or misdirected methods of treatment. Whatever effect these remedies exert upon the stomach and its functions, aside from their direct or indirect effect upon the nerve supply, we must bear in mind that both drugs, as inorganic substances, are distributed throughout the economy through the medium of the blood and lymph vascular systems—mercury in the form of an albuminate or oxalbuminate, and arsenic in the form of an arsenite—but the fact remains that the organism protests against their presence and is intent upon their elimination.

In order to form a true conception of the clinical virtues of a drug we must have some knowledge of the effects which it produces upon the various tissues with which it comes in contact, but more especially those structures concerned in its elimination. Mercury, for example, is first eliminated by the liver, although, when introduced into the stomach in the usual manner, doubtless a portion reaches the general circulation without first encountering this organ. Elimination, however, by the liver is but partial, since a considerable percentage of the drug thus excreted is reabsorbed from the intestinal tract, and thus we observe the wise provision of Nature for preventing the too rapid absorption of poisons in any form. Still, the hepatic cells necessarily permit a portion to be carried over into the general circulation. Substantially the same process attends the ingestion of arsenical preparations, and, although both drugs have the effect of producing increased oxidation, they possess special properties peculiar to themselves which can only be hinted at for the present.

Having now traced these drugs to the liver, and stated

that one of their functions is to increase oxidation, the question naturally arises as to the specific effect produced upon this organ and upon its cells by the presence of a foreign body—a protoplasmic poison. To say that mercury, arsenic, or any other drug is an hepatic stimulant, furnishes no evidence which will enable one to judge of the manner in which stimulation is brought about. This method of teaching is too indefinite and should be discarded.

If we were to follow the mercurial or arsenical combination in its course through the hepatic gland, we should find that it enacted the rôle of an irritant to the hepatic cells, and that, if not given in too large quantities, cellular activity would be appreciably increased, which covers the idea conveyed by the term "*stimulation*." But, even then, the explanation does not explain; nor does it lead us to consider the liver, in respect to these foreign bodies, as performing more than a simple mechanical function in a perfunctory manner. We must bear in mind that the hepatic cells exercise the function of eliminants as a specific property, independent of their nerve supply, just as the cells of the stomach and intestines enact the rôle of absorbents independent of their nerve supply. There is a distinct difference, however, between "*irritation*" and "*stimulation*," as applied to the function of these cells. For example, they are excited by an irritant, while they are incited to activity by a stimulant. For therapeutic purposes a stimulant is required, while irritation is followed by pathological processes that retard their activity; and cellular therapy is concerned in promoting stimulation while at the same time avoiding irritation.

Cellular therapy I have defined (*American Therapist*, New York, December, 1892) as "*the name applied to the method in therapeutics of exhibiting properly selected medications with a view to restoration of cell function*," and in practice it is strictly in accord with the deductions of experimental physiology and pathology, but it goes farther than the consideration of the mere mechanical effects of medication. Let us see, then, how its application in the case under consideration may be delineated without recourse to unscientific hypotheses. In the first place, these cells, possessing specific functions, are composed of protoplasm; in the second place, the proper performance of their functions depends upon the integrity of the protoplasmic cells—the elementary substance of which they are composed; and, in the third place, their activity depends upon the capacity of the protoplasmic cells to store up and give off oxygen, or manufacture ozone as occasion demands. Extra work thrown upon them may lessen or temporarily suspend their activity; the ordinary stimulus may be insufficient to promote the customary and necessary metabolic changes (anabolic and katabolic); but a foreign substance, like arsenic or mercury, may be just sufficient to turn the scale by reason of their ability to stimulate or incite the protoplasmic constituents to renewed activity. The question of dosage plays no considerable part in determining the physical facts; but, from a therapeutic standpoint, it is of paramount importance, since the object sought for is stimulation and not irritation. It is now well known that even a mild stimulant, if long continued or given too fre-

quently, may become an irritant, although the "action" is uniform. This axiom is so generally recognized that it is not deemed expedient to point out the necessity for administering the minimum dose, but the frequency of repetition demands attention.

When a readily soluble arsenical product like Fowler's solution is taken into the stomach in substantial doses, it may act as a temporary irritant to the hepatic cells, but if this dose be exhibited at long intervals, the poison is gradually eliminated through other channels, or deposited in the various tissues, thus enabling these cells to recover in a measure from the overstimulation. There is also another factor to be considered in connection with the administration of arsenic in so-called medicinal doses—namely, the increased oxidation which takes place throughout the organism as a whole, which probably has the effect of relieving the liver from a considerable amount of work. On the other hand, when comparatively small doses of an insoluble mercurial, like the biniodide, are taken into the stomach at short intervals, its distribution is less prompt, and the hepatic cells, receiving it in small quantities, find no difficulty in eliminating it, and with it the catabolic products which interfere with its normal functions. In the former case, although the disease may disappear, the patient requires treatment to counteract the effects of medication; in the latter, with the subsidence of the disease, the necessity for medication ceases, because rational treatment is limited to mild stimulation; in other words, it is limited to the restoration of function, and rational treatment assumes, as a prerequisite, that the practitioner is familiar with the peculiar powers of drugs and other remedies.

But these medicaments have a similar effect upon other tissues with which they come into contact; everywhere throughout the economy they produce irritation or stimulation through their influence upon protoplasm, and especially is this noticeable at the points of elimination. It is this property which gives the mercurials their value in nearly all throat affections, since the epithelial cells at this point are actively concerned in their elimination. The same is true of arsenical preparations in the case of pulmonary and bronchial affections. In the course of eliminating these substances morbid products are either destroyed or carried off with the foreign substance. In addition, however, increased cellular activity throughout the organism likewise lessens the work of the eliminating structures, and thus it seems reasonable to conclude that cellular therapy furnishes a basis for scientific therapeutics, since it has for its object the restoration of function through the mechanism of the cell.

There is still another matter to which attention should be directed—namely, the germicidal function of the living cell. Since the promulgation of Metschnikoff's theory of phagocytosis, various views have been advanced to account for the natural resistance of the organism. It has even been claimed that immunity from disease may be due to the natural antiseptic properties of the blood serum; and the therapeutic virtue of animal extracts is still a bone of contention. For the present it will be sufficient to refer briefly to the results of Professor Vaughan's recent inves-

tigations which show, from a scientific standpoint, the exact origin of this important function, or power of resistance. It lies in the cell—not as a whole, but in the cell nucleus—and from this body has already been produced valuable germicidal solutions far more effective than corrosive sublimate and perfectly safe.

This germicidal function of the cell suggests the idea of re-enforcing it when disturbed by disease, by introducing into the system some substance that will enhance its nutrition; but hitherto we have depended exclusively upon remedies which enact the rôle of irritants, as already outlined. Vaughan's investigations form a notable contribution to cellular therapy, and when the time comes that we can make the idea practical, the utility of cellular therapy will be more fully appreciated than it is to-day.

The adaptation of this idea in the rational treatment of disease, although apparently complicated, is extremely simple and easily understood by those familiar with the physiological actions and pathological effects produced by drugs. Text-books and special monographs in medical literature are teeming with the information necessary to guide us in the selection and administration of appropriate medications. Very full and exhaustive reports are to be found in which are recorded all the information required to enable us to decide in a given case as to the remedy and the dose. The only difficulty liable to arise in connection with treatment relates to the complications which may be present, and even here, when the disease is not of long standing, they may be disregarded. The physician on the ground must decide whether it is best to treat the effects or symptoms of disease, or strike at the cause. In the case of many affections, dietetic, hygienic, and climatic regulations will be sufficient to remove the cause, and remedies directed to the effects will promptly restore disordered function. This is especially true in respect to acute diseases and digestive disorders. In the case of chronic ailments physiological remedies are demanded, meaning by this remedies whose physiological action is known to be in line with the desired modifications in cell life and cell nutrition of the affected organ or tissue.

To give this discussion a practical turn may be cited the value of mercurials in small doses in intestinal affections dependent upon a disordered condition of the liver, or throat troubles of like origin; the virtues of arsenic in skin diseases associated with chronic derangement of the alimentary tract, in which instance may be seen a marked illustration of the utility attending increased cellular activity. In every case of disease where the seat of disturbance can be definitely located, remedies may be selected which will modify the function of the cells involved, but our attempts in this direction must be made with due caution, owing to the dangers arising from overstimulation, which would seriously handicap our efforts to restore impaired function.

4621 FRANKFORD AVENUE.

The Tri-State Medical Society of Georgia, Alabama, and Tennessee will hold its fifth annual meeting in Chattanooga, Tenn., on Tuesday, Wednesday, and Thursday, the 17th, 18th, and 19th inst.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.

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Edited by
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, OCTOBER 7, 1893.

THE MARINE-HOSPITAL SERVICE.

It seems very unfortunate that the Government Printing Office is so dilatory in its work that the *Annual Report of the Surgeon General of the Marine-Hospital Service for the Fiscal Year 1892*, that was ready for printing on November 30, 1892, should not be issued until October, 1893. The promptness with which these reports have heretofore appeared in December of the year reported on, or at the latest early in the following January, makes the present delay noticeable and likely to cast a reflection on the promptitude of the surgeon general.

The record of the ninety-third year of the service bears testimony to its vigor and usefulness, for it realizes what Dr. Oliver Wendell Holmes said should be desired in advancing years, the service being ninety-three years young rather than ninety-three years old. The admirable organization that was initiated by that able officer, the late Surgeon-General John M. Woodworth, and that was broadened and elaborated by the virile administration of ex-Surgeon-General John B. Hamilton, has had increased responsibilities imposed upon it during the administration of its present executive.

The first portion of this report is devoted to the medical corps, and reference is made to the desirability of legislation making some provision for the families of officers who lose their lives in the discharge of duty, a topic that was recently touched upon in these columns.

The medical work of the service shows that 53,610 patients were treated during the year. Of the 906 surfmen and keepers of the Life-Saving Service examined, 64 were rejected for physical causes; and of 1,344 pilots examined, 60 were rejected on account of color-blindness. But one officer was detailed for cruising duty with the Revenue-Marine Service. The surgeon general recommends that pilots should be re-examined regarding their color-sense every three years, and that a general visual test and a test for hearing should be applied at the same time as the color-test.

Medical officers of the service were on duty at the ports of Boston, New York, Philadelphia, and Baltimore for the examination of immigrants.

There is an elaborate account of the important work of the service during the threatened invasion of cholera and small-pox in 1892. The report on the national quarantine service is especially interesting, as it gives descriptions and illustrations of the various stations.

With all this work the surgeon general has continued the economical methods that characterized the administration of his predecessors, the expenditures for the care and maintenance

of the patients and hospitals being but \$586,839.06, and the unexpended balance increased more than seventy-five per cent. We know of no greater proof of the administrative abilities of physicians than this, for in the Marine-Hospital Service the doctor, not a board of laymen or an executive steward known as a superintendent, is responsible for all the expenditures. Furthermore, there are very few government services that can show a balance from their appropriations at the end of the year.

The volume contains a number of original papers on hygienic and medical topics. One of the most valuable of these is Surgeon H. R. Carter's report on the disinfection of wooden vessels used for the transport of yellow-fever patients. As he is one of the ablest quarantine officers in the United States, his advice can not but prove serviceable to everybody interested in this topic.

An interesting history is published by Passed Assistant Surgeon A. C. Smith, supplementing a report by Passed Assistant Surgeon C. P. Wertenbaker, in the report for 1891, on a supposed case of Morvan's disease. The history as published by Dr. Wertenbaker was typical of that disease, but Dr. Smith reports that over a year later the man presented symptoms that were indisputably those of anæsthetic leprosy. It may be recalled that Zambaco Pasha visited Brittany and found that Morvan's patients that were still alive were affected with anæsthetic and tubercular leprosy, and this case in the United States confirms his statement that Morvan's disease is a form of leprosy.

There are a number of reports of fatal cases, with necropsies, but the value of these is diminished because the name of the reporter is omitted. More careful editing of this portion of the volume is advisable, for, while some of the reports are very well made, others are absolutely devoid of information, and it is not credible that an officer would be willing to append his name to a poor report. The volume contains the usual number of statistical tables, and it is a credit to the service.

CLINICAL INSTRUCTION IN INFECTIOUS DISEASES.

THE "Local Authority" for Glasgow, under the Public Health Act relating to Scotland, addressed, in 1890, a communication to the General Medical Council for Great Britain, urging the necessity of the clinical instruction of students in the characteristics of the various infectious diseases. The Council, at its summer session in June, passed this resolution: "That no qualification in medicine ought to be granted without evidence of clinical instruction in infectious diseases." It seems to us that it would be an excellent plan if the licensing bodies of those States of the Union that have laws regulating the practice of medicine should refuse to license graduates of institutions that fail to provide a course of clinical instruction in contagious and infectious diseases.

At one of the meetings of the New York Academy of Medicine last spring, Dr. John Winters Brannan called attention to this lamentable deficiency in the curriculum of our medical col-

leges, and urged the adoption of some plan by the boards of health of the large cities by which hospitals for contagious diseases should be open for the clinical instruction of students. Dr. Brannan's paper advocated the adoption of *some* plan, rather than any specific plan, his idea being that the boards of health would be strengthened in their conflict with contagious diseases by having practitioners in their respective communities that were conversant with the earlier and with the paradoxical phases of those diseases. Each of the speakers on Dr. Brannan's paper acknowledged that he had begun his professional career with nothing more than book knowledge of most of those diseases.

Our college faculties are fond of laying great stress on the facility their students acquire in recognizing rare diseases that a few men may see once or twice in a lifetime, and on their acquaintance with the technique of operations that not more than a small percentage of these graduates will ever be called upon to perform. But the contagious diseases, that cause about ten per cent. of the mortality in our cities, are only familiar to them through word pictures.

We have heard that the board of health of this city has had under consideration a plan by which such instruction may be afforded, and it is to be hoped that it will not be long before the graduates of New York medical colleges are as familiar with the appearance of any of the contagious diseases as they are with that of pneumonia or heart disease.

MINOR PARAGRAPHS.

A MILK DRESSING FOR BURNS.

The *Chemist and Druggist* states that one of its French contemporaries, the name of which is not given, favors the use of milk as a dressing for burns, to be applied by means of compresses. The dressing is to be renewed night and morning. Under this treatment the reduction of the size of large burns has been marked and speedy. In one instance an extensive burn on the leg, treated in this manner for three or four days, was reduced from five inches to an inch in width. In another instance a severe burn that had been rebellious under a treatment with olive oil and zinc oxide healed rapidly under the application of milk compresses. This suggestion may serve as a valuable one for country practitioners when their accustomed remedies for burns are not at command.

NEWSPAPER MEDICINE.

The journalist's imagination strays into the medical field elsewhere than in the United States. Several of our French contemporaries have recently called attention to the *Libre parole's* account of the case of a woman who had received severe injuries of the head, in consequence of which her brain began to flow out and had to be put back a number of times during the dressing.

AN ACCIDENTAL DEATH FROM AMMONIA.

At New Brunswick, New Jersey, an unusual cause of death has been announced as the result of the careless administration of aqua ammoniac to a person in a fainting condition. A bottle containing several ounces of the drug was held to the pa-

tient's nose in such a way that the liquid was spilled. Some of it found its way into the throat and air passages. The throat and lungs were profoundly irritated by the ammonia, and the woman died in great pain. She had only recently recovered from an attack of pneumonia.

SMALL-POX AND THE VANDERBILT CLINIC.

It has been stated publicly during the past week that two physicians recently contracted small-pox from a patient whose disease had been erroneously diagnosed as chicken-pox at the Vanderbilt Clinic. Unfortunately, the spread of the disease to the two physicians is undeniable, but, on inquiry, we feel assured that the alleged mistake in diagnosis was not made. Our information is to the effect that the case was at once diagnosed as one of small-pox, and that the patient was disposed of in the manner customary in such cases.

THE PUBLIC HEALTH SECTION OF THE ACADEMY OF MEDICINE.

MR. ERNEST HART, the editor of the *British Medical Journal*, is announced to read a paper before the Section in Public Health, Legal Medicine, and Medical and Vital Statistics of the New York Academy of Medicine on Tuesday evening, October 10th. His subject will be Quarantine and Medical Inspection; a Summary of European Experience.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 3, 1893:

DISEASES.	Week ending Sept. 26.		Week ending Oct. 3.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	36	8	16	8
Scarlet fever.....	41	5	36	0
Cerebro-spinal meningitis....	1	1	1	1
Measles.....	56	4	32	5
Diphtheria.....	87	31	118	27
Small-pox.....	38	3	7	11

The Philadelphia Polyclinic will devote a special week, beginning on October 30th, to the subject of cataract. Cataract operations will be done, both extractions with iridectomy and simple extraction, and the whole subject of etiology, diagnosis, the dressing and after-treatment, complications, etc., will be gone over. In addition to clinics, demonstrations, and practice of operations on the eyes of lower animals, there will be a series of "conferences" participated in by the professors and the members of the class.

The University of Texas.—The newly created School of Pharmacy was opened on the 2d inst. with a faculty consisting of Dr. James Kennedy, professor of pharmacy and lecturer on botany; Dr. S. M. Morris, professor of chemistry; and Dr. E. Randall, professor of materia medica.

The Richmond, Va., Academy of Medicine and Surgery.—At the next meeting, on Tuesday evening, the 10th inst., Dr. C. R. Cullen is to open a discussion on Obstruction of the Bowels.

The Shelby County, Indiana, Medical Society.—At the next meeting, on Monday, the 9th inst., Dr. J. R. Jenkins is to

present the subject of Excision of the Hip, and Dr. W. F. Green that of Rheumatism.

Ipecac as an Application to Insect Bites.—The *Union médicale* recommends a mixture of equal parts by weight of powdered ipecac, alcohol, and sulphuric ether as an application to insect bites.

Changes of Address.—Dr. William B. Coley, to No. 52 West Thirty-fifth Street; Dr. Frank Hartley, to No. 46 East Thirty-fourth Street; Dr. Louis Heitzmann, to No. 110 East Fifty-eighth Street.

The late Dr. Walter Vought.—At a meeting of the New York Neurological Society, held on October 3, 1893, the following resolutions were adopted:

Resolved, That it is with the deepest regret that this society has learned of the death of Dr. Walter Vought, one of its youngest and most promising members, and one who had already given evidence of the possession of exceptional knowledge and ability, not only in the department of neurology but in the whole field of general medicine.

Resolved, That in the death of Dr. Vought his colleagues lose a friend much esteemed for his excellence as a physician and still more for his good-fellowship, loyalty, devotion to principle, and nobility of character.

Resolved, That this society, in expressing its appreciation of the high qualities of heart and brain of its departed member, and its feeling of regret at his loss, desires in addition to extend its deep sympathy to his bereaved family.

[Signed.] FREDERICK PETERSON, M. D., }
 JOHN W. BRANNAN, M. D., } *Committee.*

The Death of Dr. E. A. Maxwell occurred on September 25th. He was graduated from the Bellevue Hospital Medical College in 1869. Soon after his graduation he was appointed visiting physician to the Randall's Island Hospital and Charity Hospital, and for fifteen years he served as pathologist to the latter institution. At the time of his death he was consulting physician to Randall's Island Hospital and consulting pathologist to the City Hospital.

The Death of Dr. William F. Hutchinson, of Providence, one of the most prominent surgeons of Rhode Island, is reported as having taken place on Monday, the 2d inst.

Society Meetings for the Coming Week:

MONDAY, October 9th: New York State Medical Association (first day—New York); New York Academy of Medicine (Section in General Surgery); Lenox Medical and Surgical Society (private); New York Ophthalmological Society (private); Society of Medical Jurisprudence, New York; New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynaecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association; Shelby County, Indiana, Medical Society.

TUESDAY, October 10th: New York State Medical Association (second day); New York Medical Union (private); Kings County Medical Association; Medical Societies of the Counties of Albany (annual), Chenango (tri-annual), Greene (semi-annual—Cairo), Jefferson (quarterly—Watertown), Oneida (quarterly—Utica), Ontario (quarterly), Rensselaer, Schoharie (semi-annual), Tioga (quarterly—Owego), and Wayne (semi-annual), N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Bergen, N. J., and Cumberland (semi-annual), N. J., County Medical Societies;

Litchfield, Conn., County Medical Society (annual); Northwestern Medical Society of Philadelphia; Baltimore Gynaecological and Obstetrical Society; Richmond, Virginia, Academy of Medicine and Surgery; Practitioners' Club, Richmond, Ky.

WEDNESDAY, October 11th: New York State Medical Association (third day); New York Surgical Society; New York Pathological Society; Metropolitan Medical Society (private); American Microscopical Society of the City of New York; Medical Societies of the Counties of Albany and Allegany (quarterly), N. Y.; Tri-States Medical Association (Port Jervis, N. Y.); Pittsfield, Mass., Medical Association (private); Franklin (quarterly—Greenfield), Hampshire (quarterly—Northampton), Middlesex South (Cambridge), and Plymouth (special), Mass., District Medical Societies; Philadelphia County Medical Society; Kansas City Ophthalmological and Otological Society.

THURSDAY, October 12th: Vermont State Medical Society (first day—Rutland); New York State Medical Association (fourth day); New York Laryngological Society; New York Academy of Medicine (Section in Pediatrics); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, October 13th: Vermont State Medical Society (second day); New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties (anniversary).

SATURDAY, October 14th: Obstetrical Society of Boston (private).

Letters to the Editor.

MR. ERNEST HART AND THE AMERICAN MEDICAL PROFESSION.

WASHINGTON, D. C., October 1, 1893.

To the Editor of the New York Medical Journal:

SIR: I have hesitated during the few hours that have elapsed since the receipt of the *Journal* of the 30th ult. whether or not to answer Mr. Hart's inconsequential letter in reply to mine contained in your issue of the 16th ult. He has, however, befogged the matter a little, and a few words from me may perhaps serve to clear away the mist. Mr. Hart, in his recent communication, reminds me of the lawyer who, when he got an adverse decision from the court, satisfied his conscience by abusing the judge.

In regard to the allegations I have made against him, he has nothing but quibbles. As to his personal abuse of me, I am not going to defend myself from anything Mr. Hart can say. My entire conduct has long since been passed upon by the American people and the medical profession, and I and my friends (and I am happy to say I have thousands of them in both categories) are perfectly satisfied with the record as it stands.

I did not assume to represent the medical profession in what I said about Mr. Hart; but I do make that assumption now, and if he will kindly consent to look over some of the many letters I have received from physicians of all parts of the country relative to my observations in regard to him, he will agree with me that, so far as this matter is concerned, I am some-

thing of a representative man. As to my strictures on Mr. Hart's conduct since he has been in this country, I can not for the life of me, after carefully perusing his letters several times, see that he has lessened the force of a single one of them. He says he is the "scientific adviser" (whatever that may be) of the Apollinaris Water Company, but not a stockholder, as I had learned from a warm friend of his. So far as the gravamen of the charge is concerned, no one will seriously contend that he has diminished it in the slightest degree. He is pecuniarily interested all the same, and that is enough, from his point of view, to account for his extraordinary efforts in behalf of the company.

In his plea in mitigation he is like the housemaid in *Mr. Midshipman Easy*, who, when accused by her mistress of having had a baby, replied, "Yes, ma'am, but, if you please, ma'am, it was such a little one."

Mr. Hart says: "I was the guest of the Pan-American Medical Congress, and on entering its headquarters I registered in ceremonious form." Now, can it be supposed for a moment that Mr. Hart imagines he can make the medical profession of this country believe that he mistook a hotel register for the record book of the congress? Every other person present knew perfectly well that the place for registration was at Willard Hall, and that the hotel register was used entirely for the business purposes of the house and had no connection whatever with the congress. If Mr. Hart, who is something of a traveler, did not know this he must have had a sudden accession of simplicity before which that of the proverbial marine pales into insignificance. And the next time he visits Washington and cares to look over the registers of all the hotels of the city he will doubtless find that he was the only medical man so impressed with the desire to register in "ceremonious form" as to make use of titles in such alphabetical improvidence as he displayed.

There is a point in regard to Mr. Hart's connection with the Apollinaris Company on which his admission that he is its "scientific adviser" requires some amplification. I am not one of those self-righteous persons who imagine that pecuniary interest and honesty of purpose are incompatible. To think this is to impugn the integrity of ninety-nine out of every hundred of mankind. But Mr. Hart appears to be one of that class, and he must therefore submit to be judged by his own standard. Now, while he was the "scientific adviser" of the Apollinaris Company he was the editor of the *British Medical Journal*, and was bound, according to his own tenets of morality, to keep the affairs of that company so distinct from his editorial charge that it would be impossible for him to accuse himself of using his position to aid his employers, the Apollinaris Company. Let us see how he fulfilled this obligation.

Looking over the volumes of the *British Medical Journal* from 1875 to the present time we find that there are fulsome advertisements of the Apollinaris and Hunyadi János waters (the latter owned by the Apollinaris Company) ascribing to them, on the testimony of eminent physicians and surgeons with all their medical, hospital, and even literary qualifications appended to their names, more therapeutic virtues than, so far as I know, have ever been given to any other mineral waters, and that, in addition, the reading pages of the *Journal* have contained equally laudatory opinions. Now, every physician who knows anything about these waters is aware that the first-named is a simple table-water, differing from the ordinary beverage merely in being carbonated and containing a little chloride of sodium, while the other is an aperient of a disagreeable taste, no better than a dozen others of this country and of Europe. Yet we find that the *British Medical Journal*, edited by Mr. Hart, for February 22, 1892, contains the following ad-

vertisement, referring to a previous authoritative notice, not an advertisement:

"Its numerous competitors appear to have one after the other fallen away.—*British Medical Journal*."

Again, on page 808 of the *Journal* for March 4, 1876, is an elaborate editorial notice of the Hunyadi János water in which it is especially commended to the favor of the medical profession, and this notice is twice referred to in the index.

And yet again, at the head of a full-page advertisement of this water, in the issue for December 22, 1877, there is displayed in conjunction with others the following testimonial from the *British Medical Journal*:

"The most agreeable, safest, and most efficacious aperient water which has been brought under our notice.—*British Medical Journal*."

This is rather lame English, I admit, but it very emphatically expresses what the writer wanted to say, not one word of which will, I believe, be indorsed by thoroughly disinterested persons qualified to judge.

These citations, which it would be easy to multiply, are sufficient to show that Mr. Hart, when his own actions are involved, has not that keen sense of propriety which he affects when he criticises others. As the editor of the organ of the British Medical Association, holding the views he does, he should not have admitted even the advertisements of the Apollinaris Water Company to its pages, much less have advocated its merchandise in his editorial columns. For was he not an employee of the company and hence contaminated with that pecuniary interest which he believes robs a medical man of his independence and honesty?

Mr. Hart further says: "I do not believe that any details of my medical career have ever appeared in the lay press." Well, if he is at all open to conviction I am able to dissipate his incredulity. If he will refer to the Milwaukee and Chicago papers of the last six months he will, as I am told by medical gentlemen personally aware of the facts, discover several instances in which his portrait and details of his life have been published. These I have not seen myself, but the evidence is to my mind entirely conclusive.

But in the Washington papers published during the meeting of the Pan-American Medical Congress, and while Mr. Hart was present in the city, there is enough to dissipate his unbelief. Thus, the *Washington Post* of September 4th has a portrait and at least half a column of biographical details so full that they could only have come directly or indirectly from Mr. Hart himself.

The *Evening Star* for September 7th refers to him as "one of the best known medical men of England," and gives a full report of his address—so full, in fact, as to lead irresistibly to the conclusion that the writer had had access to Mr. Hart's manuscript.

Now, all these publications occurred under Mr. Hart's eyes without any public remonstrance or protest, and, if not with his active, certainly with his passive, consent. As to the medical journals, we all know that several of them have contained full-page portraits of Mr. Hart, with minute biographical details not previously known, probably, to a dozen persons in this country.

So far as my opinion goes, I have only to say that I see nothing objectionable in all this. Mr. Hart has led a busy life, he has doubtless in his day accomplished a great deal of good; and there is no reason whatever why the American people and medical profession should not be made acquainted with his works of reform and progress. But it is scarcely fair for him to reprove in some of us (Dr. Pepper, Dr. Hughes, Dr. Love, Dr. Gihon, Dr. Wyman, Dr. Hamilton, Dr. Ohman-Dumesnil,

to mention a few of those whose portraits and biographies appeared with his) what he tolerated in himself.

There is not much more to say at present, for Mr. Hart in reality admits the truth of all the other statements of my letter. But, in referring to what I said relative to the treatment of our English brethren by society, he says my remarks are a "parody." Certainly this is an instance of heterophemy. They were solemn facts, not one of which Mr. Hart or any one else can truthfully deny. Should he attempt to do so, I am prepared to substantiate them, not only from the statements of the victims themselves, but from unimpeachable literary and medical sources, and even from the journal which Mr. Hart has so successfully edited for over a quarter of a century.

I should like to say a word or two in regard to the detection by Mr. Hart of the impurities existing in the water supplied to Chicago and of the change effected through his influence with the authorities. I was not aware till I read his article in a recent number of the *British Medical Journal* that the physicians of that city had neglected their duty or were so ignorant as not to know what it was or how to perform it, but now that I am aware of what he accomplished in that direction I trust that I am duly grateful. To use his own language, he was "able to demonstrate an undeniable relationship between the preventable diseases of the city and its pollution of the lake and to demonstrate some incredible shortcomings in this matter which have greatly moved public opinion." But I must forbear lest I weary your patience.

In conclusion, let us hope that, having no social, or unsanitary, or unprofessional foes to conquer at home, Mr. Hart, now that he has so auspiciously begun the work of reform among us, will stay long enough to finish the good work and thus to render us a worthy daughter of the immaculate mother who gave us birth.

WILLIAM A. HAMMOND, M. D.

THE NEW YORK INFANT ASYLUM.

NEW YORK, September 30, 1893.

To the Editor of the *New York Medical Journal*:

SIR: The resignations from the medical board of the New York Infant Asylum and recent comments in one of the New York daily papers lead me to send you the resolutions adopted at the last meeting of the defunct board, authority to publish which was given me at my discretion. I have hitherto refrained from doing so for the reason that I did not see any good to be gained by washing what doubtless the board of managers will term "dirty linen" in public. In view, however, of the reported comments of certain of these managers, it seems eminently fitting that medical men should understand distinctly the causes which led to wholesale resignations from one of the greatest charities (using the term in its true sense) in the city, for thereby alone will medical men be enabled to judge as to whether their self-respect as men and as physicians will allow them to fill the vacant places under the present management. Medical men may be cheap, as it has been stated, but when a principle is at stake medical men ought to stand together and thereby furnish a living denial of the allegation. All positions are not golden ones, and official titles at the cost of one's self-respect are unworthy of our acceptance.

I append the resolutions:

Whereas, The medical board of the New York Infant Asylum respectfully requested the board of managers:

1. No faithful medical officer shall be removed without cause.
2. Nominations to fill vacancies shall emanate from the medical board.

Whereas, These reasonable and just demands have been peremptorily refused by the board of managers,

Resolved, That, in dignified protest and in justice to themselves as men and physicians, the following members of the medical board hereby resign.

These resolutions were signed by eighteen medical men who for years had given their time, their skill, and their money to the institution. These resolutions were adopted after nearly six months' fruitless endeavor to adjust matters amicably and equitably. This action is now characterized as "tomfoolery." One of the managers is reported to have said that he did not care a "picayune."

The medical profession may now judge for itself. The gentlemen who resigned have absolutely no nuts to crack. They left the institution they had served well with regret and they wish well to those who succeed them.

EGBERT H. GRANDIN, M. D.

Proceedings of Societies.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

Held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 5, 6, 7, and 8, 1893.

SECTION IN GENERAL SURGERY.

(Continued from page 323.)

Suturing of the Brachio-cephalic Vein.—Dr. MARIN, of San Pueblo, Mexico, read a paper with this title in which he described that, on the 1st of May, 1889, a man was received at the hospital of the city of Pueblo who had been wounded by a pistol bullet of forty-four caliber. The bullet had made four wounds. It had first entered at the sternal portion of the left sterno-clavicular articulation. The second, an exit wound, was upon the right clavicle at the juncture of the inner and middle thirds. The ball had then entered again at the shoulder three centimetres below the acromion in the anterior portion, and had made its final exit at its external aspect, one centimetre below the acromion. The left sterno-clavicular articulation had been opened, the ball traveling in the subcutaneous tissues of the anterior part of the neck, afterward backward to the right sterno-clavicular muscle, and again upward to its clavicular insertion. The shoulder wounds were of no importance. The speaker was in attendance upon the man two hours after the accident. The patient was pale, bloodless, in a condition of syncope, with cold sweats, and had a small, frequent pulse. The hemorrhage had been very profuse, and dark blood was pouring from the supraclavicular opening. The flow of the blood was peculiar, as it would stop on inspiration when the man remained quiet; then the loss was insignificant. Immediately after any effort the quantity was increased. With the assistance of Dr. Gonzales and Dr. Lopez the speaker had proceeded to an examination of the wounds, and particularly of that wound which bled so much. It was found that the seat of the hemorrhage was deep and probably in the veins at the root of the neck, and that it would be necessary to make a dissection of the sound tissues until the bleeding point was located. The clavicular portion of the muscle was carefully cut above its insertion, when it was ascertained that the bleeding was still deeper. A further layer of muscles was accordingly dissected with the finger and, by carefully sponging, the bleeding point was at length seen. Hemostatic forceps were applied and an attempt was made to pass a ligature, but the effort was unsuccessful. Further examination revealed a longitudinal fissure of the vessel, one centimetre in length, running

between the junction of the internal jugular and the subclavian veins, at the point where they form the brachio-cephalic vein. This was the point from which the blood had poured during expiratory efforts. Compression by sponges was made, and a consultation held as to the best course to pursue. Ligature at the site of the bleeding had been tried and had failed, and to ligate all the veins coming to the large trunks was almost impossible. Compression with a gauze tampon was an uncertain and dangerous measure. The speaker had at length resolved to suture this large vein. Fine, slightly curved needles charged with catgut were accordingly introduced after cleansing the parts. The hemorrhage was immediately arrested, and, despite the struggles of the wounded man, no more blood was seen. The sutures were passed through the entire width of the wall of the vessel. Some days subsequently the cut muscle was sutured. Everything progressed well and the man was out again in a month. There had been no resulting thrombus or interrupted venous circulation.

The speaker then reported another case in which he had, in July of this year, operated upon a man fifty years of age for carcinomatous ganglion of the right thigh. It was found that the saphena was involved in the degeneration, and, notwithstanding its previous ligation, extensive bleeding resulted during the process of extirpation. The cruralis was also injured. Hemostatic forceps were applied to the walls of the vein parallel to its direction sufficient to embrace the opening without shutting off the lumen of the vessel. Under the forceps the speaker then passed two catgut mattress sutures with a very fine needle, taking care not to perforate the adjacent artery. All the bleeding was thereby stopped. The patient was getting well when the speaker had left home.

Dr. MARCY thought the paper pointed to a distinct advance in surgery. Very little attention had been paid to the possibility of suturing veins. The mattress suture had been a happy thought. Very little would control hemorrhage in veins, and the use of a continuous Lambert suture, going through the edges of the wound without perforating them, would be effectual.

Two Cases illustrating the Value of Gastrostomy for the Exploration of the Cardiac Extremity of the Stomach.—

This was the title of a paper by Dr. EENESE LAPLACE, of Philadelphia. The author said that the following cases would, he thought, illustrate the benefits to be derived from immediate operation for the relief of symptoms, in spite of the desperate nature of the conditions present. Gastrostomy for the relief of an oesophageal stricture had the reputation of being something in the nature of a *dernier resort*, and this might possibly be the case when the stricture was of a cancerous nature. Still, owing to the impossibility of a positive diagnosis, it might happen, as in the cases to be cited, that other causes were producing the stricture, which, if the patient could be tided over a crisis, would subside, and the patient be restored to health.

J. H., aged fifty-four years, had been healthy all his life until the time when he began to notice a difficulty in deglutition, which was soon followed by vomiting whenever the attempt was made. Finally he was unable even to swallow water. No stomach tube of any size could be introduced past the stricture, which was diagnosed as being situated at the cardiac extremity of the stomach. No cancerous history and no possible clue could be obtained as to the nature of the obstruction. On entering the hospital the patient was in a starved condition, having been fed by enemata for three months. Although he was very weak and almost exhausted, it was determined to perform a gastrostomy. An incision was made on the right side, three inches in length, parallel to the costal arch, starting about half an inch from the ensiform cartilage. On opening the peritoneum, a hard, glistening mass was seen, and this was recog-

nized as the stomach only by its attachment to the omentum. This mass was accordingly sutured to the abdominal wall by twelve silk sutures, leaving an exposed surface of the stomach of about three quarters of an inch diameter. On the third day this was punctured with the thermo-cautery, and a sound was passed into the stomach, which was found to be quite thick and strongly contracted. The patient was fed through this opening with peptonized milk, custards, and so forth. In a few days the stomach was much dilated, and then the patient, craving food, was allowed to chew what he was given to eat, and the mass was then introduced into the stomach through the opening. No difficulty was found in withholding the contents of his stomach, for a plug, consisting simply of an India-rubber nipple such as is used in ordinary feeding bottles, was introduced, and remained clasped in position by its hour-glass portion. The patient had rapidly increased in weight and had regained perfect comfort. Then, to the astonishment of those watching the case, he had become able to swallow food through the oesophagus. Being in apparently perfect health, it was determined to close the fistula in the stomach. The patient was anesthetized, and an effort was made to determine, if possible, what had produced the original stricture. Two fingers were introduced into the stomach toward its cardiac extremity, when a pedunculated mass was found hanging high up and out of reach. Obstruction to the oesophagus had evidently begun at the time the growth started. The mass was without doubt a polypus, which had originated at the cardiac extremity of the stomach as a sessile growth large enough to completely obstruct the orifice, but, on further development, becoming pedunculated, had gravitated into the stomach, leaving the oesophagus free. The patient at the present writing was feeling perfectly well, and still retained this growth within his stomach, though it afforded him no inconvenience. It would, in the author's opinion, eventually become digested should its pedicle become long enough to allow it to hang on the floor of the stomach. If the patient should suffer inconvenience from its presence, the growth could be removed without difficulty by cutting down on the line of the old cicatrix.

The second case was that of A. H., aged fifty-two years, a miner by occupation, suffering from tertiary syphilis. This man had gradually lost the power of deglutition, but was otherwise in a fair condition. On examination, an oesophageal sound of the smallest size could not be passed through the cardiac portion of the oesophagus. There was great emaciation, and, for the relief of the progressive starvation, gastrostomy was resorted to. The operation was performed at two separate sittings, and the details were in effect those of the previously recorded case. After two weeks the emaciation had considerably disappeared and the opening in the stomach had enlarged to the size of a five-cent piece. No apparent change had taken place in the patient's power of deglutition, although he was given mixed specific treatment by the stomach. It had then occurred to the author that it might be possible to introduce a sound through the opening in the stomach and so into the oesophagus from below upward. This was tried, and with success, beginning with the small sizes. On the third day dilatation was continued, and the patient was then able to swallow liquids with ease. In about a week alimentation was completely carried on by the mouth, and the patient submitted to the operation of closing the fistula. The man had since gained flesh, and was now in good health.

These two cases, the author thought, illustrated not only the value of gastrostomy as a means of supplying nutrition to the body, but also of exploring the stomach in its whole dimension. This latter idea, as applied to the pathology of the cardiac extremity, had, he thought, not been given adequate atten-

tion, and he would be amply repaid if others were also enabled to find a solution to some pathological problem of this region by the opportunity for exploration afforded by gastrotomy.

Tapping the Lateral Ventricles of the Brain.—Dr. J. FRANK, of Chicago, presented a paper so entitled. After reviewing at some length the literature of the subject and citing cases and the opinions of authors, the writer went on to say that the interesting train of symptoms, long known and recognized—of which the principal were nystagmus, general convulsions, disturbance of the respiration, slowness of the pulse, vomiting, coma, and death—found a solution in the acceptance of the theory of compromise of the brain function by so-called intracranial pressure. Whether this pressure actually existed, or whether the symptoms had for their foundation irritation of brain elements by increased transudation, was of less importance than the possibility of the restoration of the lost brain function in part, or wholly, by removing collections of cerebro-spinal fluid, blood, pus, or other foreign matter. Tapping for hydrocephalus through the fontanelles was so old a procedure that it could not be determined who first devised or practiced it. Tapping the ventricles by means of trephining was of more recent date, and the method had been technically perfected and shown to be easy of accomplishment. After describing in detail two successful cases recently operated upon by himself the author said that there was a point of election for reaching the ventricles; either of Keen's routes would make attainment of the object easy. They should not, however, be considered the only manner of finding the cavities, nor was it necessary to have recourse to them when the skull had been opened in a different place for injury or disease. From any point on the cerebral cortex it was not very difficult to puncture to the normal ventricle. Familiarity with its location and formation being the principal requirements, it was easy where the cavity had been enlarged, as in chronic hydrocephalus.

After the usual aseptic and antiseptic details of preparing the head a crucial or curved incision, involving a flap, might be made to expose the cranium. A chisel, drill, or trephine, large or small, might be used. If the opening was too small, it might be enlarged with proper instruments. The dura might be simply punctured with a trocar or a dural flap made to expose the cerebral surfaces. This latter had the advantage of allowing closer observation of the cortex and of finger exploration between the cortex and dura. The instrument to be used for the puncture was optional with the operator and the depth of the puncture must depend upon the amount of fluid in the ventricle. Then came the very important question of drainage. Should it be rapid and free, or slow and in drops, and should there be irrigation? These questions would have to be decided to suit each individual case, as the requirements for each must necessarily differ. If the effusion into the ventricle was the result of acute and still active inflammation, the relief of compression by rapid removal of the fluid and continuous drainage until the acute stage subsided, or repeated tapings without drainage, would be a rational procedure. If the inflammation was in the stage of retrogression, the removal of fluid by simply tapping without drainage would be sufficient. In cerebellar tumors, or tumors in other situations, blood clot from trauma, etc., compromising the circulation to the extent of bringing about a hydrops ventriculi, if the condition was recent, rapid and continuous drainage should be employed. If it was of long duration, with a great amount of fluid, where the brain tissue was or might be atrophied, tapping and slow continuous drainage, or repeated tapping, would seem to be indicated. In chronic hydrocephalus with great distention of the ventricle, the brain tissue being atrophied and greatly altered in physical relationship, in order to allow of gradual return to something approaching normal condition, it would be

best to both tap and drain slowly. Rapid emptying of the ventricle under these circumstances might be fatal.

In abscess of the brain breaking into the lateral ventricle, the most rapid and free drainage and cleansing irrigations were the only procedures promising relief in that most dangerous condition. In these cases it would be best to trephine and drain both sides and irrigate from side to side. Repeated tapings or aspirations might in some cases take the place of drainage. The means to secure drainage would be found in rubber tubes of different caliber, gauze, wicking, or horse-hair. In special cases operative procedure could go further than puncture or drainage. The ventricles might be incised and opened with forceps so that any consistent mass or foreign body might be removed. When the skull had been opened for compression symptoms, which were confirmed by bulging of the dura and protrusion of the brain, and no tumor or clot or depressed bone being found, it would be indicated to tap the ventricles. In chronic hydrocephalus, with enlargement of the head, with great distention of the ventricles and corresponding atrophy of brain tissue, tapping and drainage would be indicated. The following conclusions were therefore arrived at by the author of the paper:

1. For distention of the ventricles, for acute, simple, or tubercular meningitis, tapping the ventricles is a therapeutic measure clearly indicated, and, other things being equal, promises recovery.
2. For effusion of blood into the ventricles, from trauma or disease, the operation makes recovery a possibility.
3. For abscess, involving the ventricles, it is imperatively demanded.
4. In effusion into the ventricles from brain tumors it may offer relief to symptoms.
5. For chronic hydrocephalus, with moderate distention of the ventricles, without enlargement of the head, it may afford relief.
6. For chronic hydrocephalus, with great distention of the ventricles and enlargement of the head, the operation will lead to fatal results.

The PRESIDENT of the section asked if, in cases of distention from acute hydrocephalus, the author of the paper had tried laminectomy.

Dr. FRANK said he should deem such a measure feasible in a condition of general distention.

Dr. LAVISTA, of the City of Mexico, expressed high appreciation of the work reported by Dr. Frank. He thought that in such cases simple trephining did not give a sufficiently wide area for work, and that the skull might advantageously be still further removed by craniotomy measures.

The Uses and Abuses of the Drainage-tube.—Dr. H. O. MARCY, of Boston, read a paper with this title. He said its object was to ascertain if we already possessed the requisite data from which we might draw deductions and formulate rules for guidance in the employment of drainage in wounds.

Basic to the fundamental consideration of the subject was the condition of the individual, the character of the injuries sustained, and the complications incidental thereto. The vital force, the individual resistance, varied in every instance, and must remain an *x* factor in every personal equation. It was this power in these reserved energies which was called into action in the repair of the structures after injury. In the struggle for the survival of the fittest the individual organism was ever at warfare with its surroundings, and the struggle for the mastery of the living over the dead was waged at the site of every injury, which was the battlefield where were brought into play the most subtle and occult processes of organic life.

The speaker, after referring to the general practice in the use of drainage, and quoting many of the authorities on the subject, went on to say that the object of drainage was to remove safely from a wound deleterious substances which, if allowed to remain, would in a greater or less degree retard cure. The infected material not only became dangerous in itself, but generated a chemical poison which in amount was often sufficient to produce death. To what degree the living tissues were endowed with resistant power for self-protection could perhaps never be determined with accuracy. It was, however, settled beyond a doubt that the healthy structures did have power to a certain extent to resist bacterial invasion, and that this power was in a more or less direct ratio to the physical vigor of the individual. Age, condition, and the phagocytic power of the cells to destroy bacteria under favorable conditions were also valuable factors in aiding the preservation of life. It was important that the surgeon should devitalize as little as possible the remaining tissues and that he approximate carefully cleaned surfaces. Was the present state of operative procedure sufficiently accurate to warrant the assertion that complications could not supervene? This was a question which must first be satisfactorily answered before we would be in a position to determine positively when, in aseptic wounds, we should employ or discard drainage. It was certainly clear that the experience of the past twenty years had been leading toward the solution of this problem until now it seemed demonstrated beyond a doubt that an aseptic wound might be made in aseptic tissues and maintained aseptic until restoration was complete. If this was true, the *modus operandi* of modern wound treatment must be mastered, as a ritual service of a higher religion, before a surgeon was competent to enter upon the serious responsibilities of his office. If aseptic conditions were maintained, then we might safely conclude that the drainage of the wound would not be necessary, and, if unnecessary, certainly undesirable. At best, the drainage-tube was a foreign body and its presence in a wound prevented primary union of that portion of the tissues which inclosed it. It kept the wound to a certain extent an open wound, and, as such, made secondary infection so probable that the most careful antiseptic dressings were required to absorb and disinfect secretions and prevent atmospheric contamination. In an aseptic wound, after the removal of a tube, the final closure of the tract was comparatively slow and by granulation. These were well-recognized objections, and efforts had been made to overcome them by many ingenious devices. If drainage was to be discontinued in aseptic wounds, it must be accepted that the greatest care should be exercised in leaving as little devitalized tissue as possible and in evenly coaptating the divided parts. The wound should be clean and dry. The different layers of the tissues should be joined with as little injury as possible and the external wound protected from infection. To reiterate, to secure the best results it was important to have clean incisions, devitalizing as little as possible the structures, minimizing irrigation, sponging, compressing with artery forceps, retractors, and so on, and to rejoin with careful coaptation the divided structures by light, running, continuous, buried catgut sutures. The skin was easily coapted by a similar buried suture taken from within outward through the deeper layer only. The wound should be sealed with a germ-proof layer of iodoform collodion, re-enforced by a few fibers of cotton. Such wounds went on rapidly to repair without oedema of the tissues, pain, or even tenderness, and the resulting cicatrix was minimized.

Were all aseptic wounds in healthy organisms to be thus treated? Without a doubt, as experience abundantly demonstrated; but the affirmative to such an important question was undoubtedly to be maintained only by the most scrupulous of

aseptic measures. When in doubt, it might be better to drain large wounds, but the speaker could not question that he who used the drainage-tube in aseptic wounds unconsciously confessed thereby his lack of confidence in his ability to maintain an aseptic condition. In dealing with wounds the first consideration should be the safety of the patient. This was best conserved by a careful estimate of the individual and his circumference, his possible internal and external foes. The highest theoretical condition for wounds was their restoration as nearly as possible to the normal condition of the tissues and their retention at rest in an aseptic condition. This, in a great majority of wounds, rendered drainage not only unnecessary, but of positive detriment and a source of danger.

Complete closure of an aseptic wound by aseptic buried animal sutures, retained at rest by a germ-proof dressing, came nearer to the ideal than any method yet devised. There was no fear of hemorrhage in an aseptic wound thus closed. There was no further danger from infection; clumsy antiseptic dressings were entirely avoided, but little further care was necessary on the part of the surgeon or attendant, and the patient was relieved from fear of subsequent suffering from the removal of stitches. Stitch abscesses were impossible and the patient was free from pain and went on to rapid convalescence. The author was sure that a better knowledge of the condition of wounds would restrict the use of the drainage-tube almost entirely to septic wounds and that operative wounds in aseptic tissue would be aseptically maintained by primary closure, without drainage.

Dr. QUIMBY, of Jersey City, said that the drainage-tube was a foreign body, and as such was frequently a source of danger to wounds which might otherwise heal by first intention.

Dr. McCRAE, of Georgia, had not found iodoform collodion do so well if applied over bony prominences.

Dr. PREWITT, of St. Louis, thought that, as surgeons were not now so primarily septic, drainage-tubes were not as generally in use. He agreed that in those cases where a septic condition existed drainage was imperative. Any abdominal secretion would show in a few days that the tubes were infected with germs. There was no absolutely fixed rule, but drainage had probably been used too much and injuriously.

Dr. McCOSH thought that every modern surgeon would feel indebted to Dr. Marcy for his insistence in the matter of improved wound treatment. His own practice was to dispense with drainage-tubes in every wound which might be considered aseptic. If there was an element of doubt, it was better to leave the drainage-tube in for one or two days. In very large wounds, where there were extensive dead spaces, it was unwise to sew up or tie too tightly. Some strands of silkworm gut might be introduced, or rubber tissue, but not a drainage-tube. He was in the habit of flushing out the abdominal cavity and had never regretted doing so.

Dr. LAPLACE thought that the millennium of surgery would be reached when interference with Nature's processes was reduced to a minimum. Drainage was only indicated when, either before or at the time of a surgical procedure, Nature had been interfered with. He agreed that drainage must be provided for if we expected infection, but to-day we ought not to expect it.

Dr. MYER, of San Francisco, could not agree that drainage was a thing of the past. We should always have wounds requiring special treatment in the way of drainage. It was not always possible to command coaptation of the walls of a perfectly aseptic wound, and if secretions were allowed to flow into cavities, and unavoidable oozing took place, there resulted a perfect culture medium. He did not think there would ever

come a time when the drainage-tube or packing could be entirely dispensed with.

Dr. WILDING, of New York, while believing that in septic surgery and knife wounds drainage should be unnecessary, thought there was a class of cases in which it would have to be employed. He did not like the drainage-tube, but preferred some absorbable material.

Dr. FRANK, of Chicago, said that since Dr. Marcy had urged sepsis as almost a *sine qua non* in the treatment of wounds, he had been making every effort to attain such a desirable result. He was, however, bound to admit that he had failed to get more than fifty per cent. of union by primary intention. He had endeavored to keep his technique faultless, and had then closed up apparently aseptic wounds. The next day there would be a little rise of temperature. He thought that auto-infection was a most important factor, and he believed he could trace trouble to the hypodermic injection. He thought that it was the duty of surgeons before operating to have their patients well overhauled as to their general condition, and did not see that there was any harm to be expected from a drainage-tube if such was favorable.

Dr. LAVISTA agreed to the conclusions reached by the author of the paper, but thought that the general organism of the patient would often play a most important part in determining results after an operation, notwithstanding any scientific endeavor on the part of the surgeon.

Dr. PANCOAST thought that every practical surgeon would agree in the main with the author of the paper. It must, however, not be lost sight of that from any large wound made with a sharp-edged tool there must be an effusion of serum, and though Dr. Marcy expected this wound to close up without such secretion, the speaker would prefer to feel that there was provided for a short time some proper means for the absorption of those unavoidable discharges.

Dr. MARCY then pointed out that the desirable result was not attained in too many instances, because surgeons did not give sufficient attention and take sufficient time in perfecting the toilet of the tissues before closing wounds.

(To be concluded.)

SECTION IN GENERAL MEDICINE.

The President, Dr. VICTOR C. VAUGHAN, of Ann Arbor, Mich., in the Chair.

(Concluded from page 387.)

Vaso-motor Ataxia.—Dr. S. SOLIS-COHEN, of Philadelphia, read an abstract of a paper on this subject. He said that by the term vaso-motor ataxia he proposed to designate the condition of instability of the mechanism of circulation present in certain persons and characterized by abnormal proneness to disturbance, with tardiness of restoration, of the equilibrium of the cardio-vascular apparatus. The manifestations of these conditions were most strikingly displayed in the terminal vessels, and occurred chiefly under the action of external influences. The stimulus might be applied centrally or peripherally, but in each case the resulting phenomena indicated a defect of central inhibition. Vaso-motor ataxia was in many cases congenital, in some inherited, and it was not uncommon to find it present in several members of a family. In some cases the phenomena were parietic and in others spasmodic in character. Usually the two kinds were displayed in varying degree in the same patient; it made no difference, however, whether spasmodic or parietic, the symptoms were suggestive of inco-ordination. In exophthalmic goitre, especially such cases as were produced by emotion or were markedly intermittent, was found the extreme type of the parietic variety of vaso-motor ataxia. The form of

Raynaud's disease known as "local syncope" furnished an extreme type of the spasmodic variety, while "local asphyxia" exhibited both spasmodic and parietic phenomena. Between the extremes there were numberless gradations down to the slightest departure from the normal. Even the extreme symptom groups represented merely exaggerations of phenomena that, under certain conditions, occurred in normal individuals. Dermographism was an essential feature of vaso-motor ataxia, and in most cases factitious urticaria could be readily produced by cold or by pressure, or by both. Mottlings of the skin, certain peculiar markings of the nails, telangiectases, and stigmata were common. Where there was this defect of central inhibition there was usually a hemorrhagic tendency, as shown by ecchymoses, petechiæ, epistaxis, hæmoptysis, hæmatemesis, hæmaturia, and retinal hæmorrhage. Even in the absence of hæmaturia, red blood-cells were often found in the urine. Uric acid, urates, and oxalates were likewise common. The presence of albumin, tube casts, and cylindroids was less common and was usually intermittent. Glycosuria had also been observed. In many striking cases there had appeared to be a morbid alteration of the thyroid gland, as seen in Graves's disease. The action of the heart was usually rapid, irregular, and easily disturbed, palpitation was common, and in some cases intermittent tachycardia had been noticed. Hæmic and functional murmurs were occasionally heard. Among other symptoms and morbid associations observed were drug idiosyncrasies, urticaria, local oedema, angina pectoris and pseudo-angina, hyperidrosis, asthma, hay fever, vertigo, migraine and other forms of headache, transient hemiopia and other visual disturbance, persistent mydriasis, astigmatism, myopia, hyperopia, menstrual irregularities, intermittent polyuria, rheumatism, chorea, epilepsy, neurasthenia, gastralgia, enteralgia, and membranous enteritis, most of which were doubtless related as effects of a common cause or as secondary results. The development of pulmonary tuberculosis in some cases was probably a sequence of vascular and trophic disturbance in the lung. The author believed that the time would come when the many diseases of obscure origin could be traced to the sympathetic nervous system. Once attention was turned in that direction, the cases were given careful study, and a series of microscopical examinations was made, a great step in advance would have been taken in the pathology of these diseases.

Dr. MANUEL CARMONA Y VALLE, of the City of Mexico, said that he had had quite an experience in the class of cases designated as vaso-motor ataxia. In one of these the vaso-motor symptoms had been exhibited by a unilateral redness, sweating, and oedema. He had always supposed the disease to be due to a disturbance of the sympathetic nervous system.

Dr. WEST thought that the name vaso-motor ataxia, as applied by Dr. Solis-Cohen, was one that would be of considerable worth to the general practitioner, in that it simplified one's appreciation of the class of disease referred to. He had seen several cases which would come under the category of vaso-motor ataxia—for example, flashes of heat, localized sweating, redness, etc. He thought that some cases of insomnia could be attributed to this cause. As the causes of these conditions had always been so obscure, he was glad that Dr. Solis-Cohen had advanced an idea that might lead to work being done in the right direction.

Dr. SOLIS-COHEN said that it was his belief that vaso-motor ataxia was congenital and due to imperfect development. This would account in many instances for its obstinacy in resisting treatment and the apparent futility of any measure directed to the improvement of the condition.

The Filaria Sanguinis Hominis.—Dr. DE SAUSSURE, of South Carolina, demonstrated the filaria as found in the blood

of the colored people in Charleston. He also exhibited some specimens of the adult worm taken from the cavity of the heart of a patient who had died from general anasarca and exhaustion. The disease was peculiar to the southern countries of Europe, but had never been found to exist to any extent in this country until the author's investigations. He now had discovered that the existence of filaria in the blood was not confined to the colored people, and was not only increasing in that class but was to be found in the whites living in the same locality. The embryos were to be found in the blood only at night, and this was proved to be positive, as the habits of persons had been reversed to see if the filaria perhaps had any association with meals, sleep, etc. They could be found in the domestic dog both day and night, and also in the mosquito. It was impossible to say whether the dogs in that vicinity contracted the disease from the people, or *vice versa*. As for the mosquitoes, they might have extracted the blood containing the embryos from man, or they might have ingested them from the waters in that region, and really be the means of communicating them to man. The filaria was very easy of discovery; a drop of blood from the end of the finger placed under the microscope with a power of fifty diameters would disclose an organism with a rounded head and a sharp tail, and four hundred diameters would show some of the same structure as seen in the adult worm. The speaker thought that it was not improbable that the disease was brought about by the use of inferior drinking water, as the condition was almost exclusively confined to the lower class of colored people who lived in a very depraved way and drank water from swamps and sloughs. As a great many of that class of people died from dropsical affections, it was not at all unlikely that the disease was more prevalent than had been supposed. Chylocele, chyluria, and hæmaturia were some of the symptoms of the presence of the filaria in the blood. Patients suffering with any of these conditions should in every instance be examined for the filaria, especially if the known habits were depraved or the persons had been forced to live in bad hygienic surroundings and drink inferior water. In a description of several cases that had attracted particular attention, the author referred to an examination of the fluid in a case of hydrocele showing the embryo of the filaria, and in another where the patient was suffering from chyluria, and the urine contained the organism. Dogs in the South frequently died from dropsical diseases and general anasarca, and the autopsy revealed the adult worm. The author described the very interesting case of a negress whose blood during pregnancy showed the presence of the filaria up to the time of the beginning of labor; during labor they could not be found, although repeated examinations were made. Examination of the child's blood immediately after birth revealed no embryo. The filariae did not reappear in the mother or appear in the child until thirty days after confinement, when they were found in great quantities. Examinations of other members of the family showed filaria. In a summary of the facts in regard to the presence of the *Filaria sanguinis hominis*, the author said there was no doubt that the disease was rapidly increasing in Charleston. The colored males were more susceptible to it than the females, and it was beginning to be found among white people. A case was related of a Northern man, in the best of health, who had gone to Florida to open up some phosphate fields two years previously, and whose general health had so failed that he had repaired to Charleston for treatment. The author had examined the blood for malarial germs and discovered the embryo of filaria. This man had been obliged to drink inferior water and had been very much distressed with mosquitoes and fleas. That the disease was not hereditary there seemed to be no doubt. There was no pathognomonic sign of the disease, except that of microscopical confirmation,

and that only at night. Many of the symptoms due to malaria might be present in the disease. If there was any symptom more frequent than another it was that of chyluria or dropsy. Increased heart action and heart murmurs were present. In some cases there might not be any deviation from the normal, and yet when the blood was examined the filaria be found. In one case that had come to autopsy, in which the filaria had been seen during life, no adult worms could be found. The patient had died from marasmus, brought on, no doubt, by the presence of the embryo in the blood. So far, no form of treatment had seemed to exert any influence upon the parasite. It was thought that the only hope would be some form of medication that would gain an entrance into the blood through the respiratory tract. It was found that if water was added to blood containing embryos they were dissolved; they seemed to melt in a watery solution.

Dr. FELL, of Buffalo, said that, while he knew that these embryos had been found only at night, yet he did not think that they could be altogether absent in the daytime. Probably there was some fault in the technique which had failed to discover them in daylight. If it was really a fact that they were present only at night, what scientific explanation could there be for such a phenomenon?

The PRESIDENT said that, while the geographical distribution of filaria was well marked, isolated cases had occasionally cropped up. One case had recently come under his notice in Canada. The patient had lived all his life in one district, and, so far as was known, had never come in contact with people from tropical climates that might have had the disease.

Dr. DE SAUSSURE said in reply to Dr. Fell that, if the examinations for filaria had only been made by one observer, there might be a doubt as to the correctness of the knowledge gained, but when all the investigators had failed to find the embryo in the daytime, there was no doubt that they were absent. The author had examined thirty-three cases, but had never found them in the daytime; he had been able to discover them, however, as late as at ten o'clock in the morning and as early as at five in the evening, but at no other time during the day. It had been suggested as a form of treatment that venesection be tried, with the transfusion of a saline solution. Chloroform narcosis had been resorted to, but the effect on the filaria had been imperceptible. Death usually took place from some slow, exhausting disease in from two to three years.

The Cholera Asiatica of 1892.—Dr. J. DRUMMOND BURCH, of Aurora, Texas, reviewed the history of the epidemic of cholera of last year. He said that so long as the mud of the Ganges was sacred, so long would cholera trouble the earth. The disease was distinctly traceable to an endemic of cholera in India—first in Djelalabad, Afghanistan, a town largely Hindu, in December, 1891. Pilgrims carried it to the great Hurdwan Fair, about two hundred and fifty miles north of Lucknow, by March or April, 1892. Thence, "commerce having been ingrafted on religion," it traversed much of the route of 1831, as shown by Surgeon-General Cornish. One of the coldest winters known in Europe for years had failed to arrest or stamp it out, as was shown by the reappearance of the dread plague this summer. The untiring efforts of our American Government and local authorities had prevented its gaining a foothold among us. But how long has this preventable disease to be fought by nations not responsible for it? Why should a fanaticism of the Mohammedans of the East jeopardize the interests, health, and life of the whole world? There was no doubt that cholera was a reproachable cause of death that could be laid to the door of the British Government. After detailing the steps of the advance of cholera into the various points of

Europe last year, the author went into the subject of treatment. In Hamburg the best results had been obtained from the use of hot bottles with clysters of tannic acid and water and hypodermic injections of camphor. There was a very strong argument in favor of inoculation, in the fact that persons once affected by cholera were somewhat safe against it. As prevention was better than cure, the author was in favor of inoculation with the matter as prepared by Pasteur.

Dr. ERSKINE B. FULLERTON, of Columbus, Ohio, referring to the treatment of cholera, believed that he was the only man who had been successful in combating the disease with quinine. The facts and figures were given to prove that the disease treated in the penitentiary at Nashville, Tenn., in 1873, could have been nothing other or less than malignant Asiatic cholera, kept in check by the constant administration of quinine in sufficient doses. The speaker pointed out the fallacy of using the remedy hypodermically or by the unscientific intravenous injection. He believed that there was an identity between cholera and malarial disorders which accounted for the benefit from the administration of quinine. He also gave figures showing the impossible doses of other remedies necessary to equal in inhibitory effect forty grains of quinine. To reach the seat of the disease, the remedy must be given by the mouth. Fifteen grains of quinine were sufficient to inhibit the growth of the germ in about five quarts of fluid. With the rapid peristalsis of cholera, and the very small quantity of the remedy that would be lost through absorption, the currents being into and through the bowel, it was quite reasonable to suppose that even in the intestinal tube these experiments would hold good, and the quinine, instead of being absorbed by the stomach, would pass onward to the intestine where it was needed. When the remedy was given hypodermically it passed out rapidly by the kidneys and was lost to attack the disease, which was in the intestine. The speaker believed that the experiments of Sir Spencer Wells and Dr. E. A. Parkes, with their intravenous injections of quinine, resulting in a high rate of mortality, had done much to injure the cause of this drug. All authorities had agreed that quinine in almost all cases very shortly stopped the vomiting. The diarrhoea was usually checked within a few hours. Where the dose was sufficient, reaction promptly followed the cessation of the symptoms, there was no consecutive fever, and convalescence was rapid. It appeared from the records that doses of about ten grains every hour seemed usually to give better results than larger doses at longer intervals. In the fulminant cases the thing to do was to give the quinine more rapidly. In cases of obstinate vomiting enteroclysters of quinine, forty to sixty grains in two quarts of warm water, should be tried. There would be an inhibitory margin for four times the amount of fluid mentioned, and some of this might be got beyond the ileo-colic valve. A long list of tables was read showing the rate of mortality under different treatments during different epidemics. The recent Hamburg epidemic, under "mixed" treatment, had caused a mortality of 48.4 per cent. The author's report, gathered from the epidemic of 1873 and others of recent dates, under the quinine treatment, showed the remarkably low mortality of 4.8 per cent.

Some Medical Facts connected with the Discovery of America.—Dr. A. M. FERNANDEZ DE YBARRA, of New York, read a paper with this title. He said that the principal object of his paper was to state what he had been able to gather together from a lengthened correspondence of the probable disease that had caused the death of Christopher Columbus and his ailments during his voyages of discovery in America. Instead of mental impairment coming, as had always been said about the great discoverer, it was shown that his mental vigor had kept up until the very last. His great suffering from chronic

articular rheumatism, taken with the facts of physical incapacity from that cause and his many bitter disappointments, had rendered him morose and irritable. But if these obstacles had been removed and Columbus could have carried out his desires, the world would never have heard of insanity in connection with him.

Amœbic Dysentery.—Dr. H. A. WEST, of Galveston, Texas, read a paper on this subject. He said that the question of amœbic dysentery was of practical importance in consequence of the diversity of opinion in regard to the definition, varieties, and ætiology of dysentery; and more especially the non-recognition by the general medical profession of the causal relations of the *Amœba coli* in the production of dysentery and the wide dissemination and frequent occurrence of this form of the disease. He called attention to the following points: 1. The importance of a correct definition of dysentery. It was not, as was usually taught, a morbid entity, consisting of an inflammation of the large intestine essentially the same in all forms and climates, varying only according to climatic and other modifying conditions. On the contrary, the term dysentery should only be used in a general sense to express a group of inflammations of the large intestine, partly of specific and partly of non-specific origin. 2. The adoption of the following classification would do much toward dissipating the existing confusion—viz., acute catarrhal, acute diphtheritic, amœbic, and secondary dysentery. 3. Amœbic dysentery was more widely disseminated and occurred with greater frequency than was generally supposed. 4. To emphasize the probable entrance of the amœba through impure drinking water. 5. To note the characteristic and uniform symptoms of this form of dysentery. 6. The essential chronicity and difficult cure depending upon the character and location of the lesions. 7. The necessity of combating the excessive anæmia and wasting by the use of a more liberal diet than was generally prescribed. 8. To urge the importance of cleansing and antiseptic irrigations as a rational method of reaching and destroying the amœba and stimulating the intestinal ulcers to heal. 9. To note the fact that, while solutions of quinine were destructive to the amœba, injections of the same had failed to exercise any marked curative power. 10. The speaker's experience showed that mild injections of nitrate of silver (thirty grains to a quart of water), with the occasional administration of salines and large doses of bismuth and salol, constituted the best treatment.

The details of seven cases illustrative of these points, treated in the John Sealy Hospital, Galveston, from October, 1892, to June 1, 1893, showed the comparative frequency of this form of dysentery in that locality. There were only two or three cases of catarrhal and none of diphtheritic or secondary forms admitted during that period. Two of the cases had originated upon the same steamship in Vera Cruz, and the fact strongly pointed to infection through the drinking water. One of the patients had acquired the disease while traveling through the Indian Territory and North Texas. One was from Arkansas, where he had lived for some time in the alluvial bottoms of the Mississippi and Red Rivers. Those two had also drank impure and stagnant water. The other three cases had originated in Galveston or its immediate vicinity, and no history of infected water could be obtained.

The symptoms were very uniform; though they might begin acutely, they would very soon become chronic, and were characterized by irregularity in the flux. The character and frequency of the stools alternated between improvement and relapse. The difficult cure and chronicity depended upon the nature of the lesions—viz., ulceration of different portions of the large intestine and sometimes of the ileum, with a disposition to infiltration and undermining of the mucous membrane.

affording a nidus for the development, growth, multiplication, and destructive work of the micro organisms. The nature of the disease was such as to produce very rapid anæmia and wasting. It was necessary to combat these results by the plentiful use of nitrogenous food. The character of the lesions gave the key to the most successful treatment, which consisted of thorough irrigation of the intestine—first, with simple warm water for cleansing purposes; secondly, with an antiseptic solution for destroying the organisms and stimulating the ulcers to heal.

Dr. GARDNER, of Indiana, related his experience with the class of cases described by Dr. West, and said that he had come to the conclusion that there existed an undoubted relationship between drinking water and amoebic dysentery.

Dr. WILLIAM OSLER, of Baltimore, thought that under different circumstances the symptoms of amoebic dysentery varied, and that they might approach those of typhoid fever, such as hæmorrhage, exhaustion, and death. He also thought that there was an association between that form of dysentery and hepatic abscess.

He had found in some acute cases the injection of quinine to be very beneficial, but as a general thing the nitrate of silver to be more reliable.

The Bacteriology of Dengue Fever.—Dr. J. W. McLAUGHLIN, of Austin, Texas, read a paper on this subject. The paper was a review of original investigations in the bacteriology of dengue fever which the author had made in 1885, during the last epidemic of that disease which visited the Southern States of North America. In addition, the author was now able to present for the first time photo-micrographic illustrations of the micrococcus which he had obtained from the blood of persons suffering with dengue fever. An inspection of the photo-micrographs reproduced revealed group arrangements of the micrococcus that were distinctive of the micro-organism of dengue fever and were not found in other pathogenic bacteria. The three photo-micrographs exhibited represented distinct and different group forms of the same coccus, which, however, bore a relationship to each other. They had been obtained from the same mounted preparation of jelly culture. As the same group forms were constantly found in other mounts, the conclusion that they represented development stages in the biological history of the micro-organism seemed well taken. And, furthermore, as this grouping had never been observed in other pathogenic bacteria, and was characteristic and distinctive of the culture of the micro-organism which had been obtained from the blood of the dengue-fever subject, the author felt justified in maintaining that it was intimately, if not causatively, associated with that disease.

Some remarkable results had been obtained by applying glacial acetic acid to cover-glass preparations of freshly drawn dengue blood. When these were examined with a dry one-sixth, or, better, with a one-twelfth oil-immersion objective, numerous ovoid cocci of a yellow-brown color were seen in the blood plasma. The blood-cells, which could be distinctly seen, were normal in appearance and numbers and did not contain any of the ovoid bodies. If such results were confirmed by future investigations they would be valuable for diagnostic purposes. In conclusion, the author said that, as the work had been done in 1885, and at that time the apparatus with which he had had to deal was more or less extemporized, he hoped that the imperfections of his work would not be too closely criticised. That there were many, he was sure, especially when viewed from the present advanced standpoint of bacteriology.

Dr. GARDNER was glad to find that an advance had been made in the pathology of dengue fever, and that to Dr. McLaughlin was due the honor of isolating the pathogenic germ. For his part, he had always been inclined to think that there

was an association between influenza and dengue fever. At any rate, if there was not a pathological relationship, there was certainly a marked clinical similarity.

Dr. West did not think that because dengue fever had some of the symptoms of influenza they were one and the same disease. There was no doubt in his mind that dengue fever had a distinctive pathogenesis. To the author of the paper great credit was due for his work in establishing a definite germ as a causative agent in dengue fever.

On the Culture of Anaerobic Bacteria.—Dr. F. G. NOVY, of Ann Arbor, Mich., read a paper with this title. The paper consisted of a brief *résumé* of the principles and methods employed in the culture of anaerobic germs. The methods were described under five headings: 1. Exclusion of oxygen. 2. Exhaustion of air. 3. Absorption of oxygen. 4. Displacement of oxygen. 5. Cultures in the presence of air. Hitherto examinations of micro-organisms of this class had been attended with such difficulty and expense that no great advance had been made in their study. The speaker exhibited an apparatus which he had had made in Germany, and which for simplicity could not be improved. It was a vacuum glass jar made large enough to hold several culture tubes. The apparatus permitted of the making of large serial cultures and the use of various culture media, whether solid or liquid, and also enabled streak cultures on agar and Esmarch roll tube cultures to be made. The usual sealing in a flame was discarded and replaced by a much more convenient procedure. The culture media employed for the growth of anaerobic bacteria were also discussed, and the value of peptone, glucose, and gelatin additions was carefully pointed out. The addition of litmus was shown to possess some valuable properties. Pure cultures of anaerobic bacteria could readily be obtained even in the presence of air with as much ease as ordinary aerobic cultures. The common anaerobic bacteria could be thus cultivated without any special apparatus, and such cultures furthermore possessed the advantage of retaining their vitality for a considerable length of time.

A New Anaerobic Bacillus of Malignant Œdema.—Dr. NOVY read a second paper with this title. He said that in several guinea-pigs which had died after injections of an impure milk nuclein solution, a marked œdematous condition had been observed, resembling, and even more pronounced than, that of malignant œdema. In the subcutaneous tissue, peritoneal exudate, heart-blood, spleen, liver, etc., had been found enormous numbers of long, slender bacilli. This organism was found to be anaerobic in character, and pure cultures possessed marked infections and extremely toxic properties, producing death in from twelve to thirty-six or forty eight hours, with the characteristic œdematous condition. White rats, white mice, rabbits, guinea pigs, and pigeons were all extremely sensitive to the poison. The organs and tissues of animals that had died after inoculation with pure cultures contained very few germs, and often none could be found, showing that the normal body was not a very good soil for the growth of the germ. By injecting certain chemical substances and cultures of common non-pathogenic bacteria at the same time with the virulent germ, this natural resistance of the body was altered, and as a result the germ developed in enormous numbers throughout the body. This new, highly pathogenic, anaerobic bacillus was motile and the flagella could be readily demonstrated by Löffler's method. In some of the cover-glass preparations made from animals colorless spirals could be observed. In cultures on certain media and under certain conditions there were found similar spirals which in reality were giant whips. These could be seen in hanging drops even with a dry objective. These abnormal flagella were exactly the same as those described by Löffler in connection with symptomatic anthrax, and their formation was

probably due to involution changes. The germ was readily stained with simple dyes and also by Gram's method. Spore formation had not been observed, but the germ itself was extremely resistant. It could be grown in vacuum, in hydrogen, in carbonic acid, in nitrogen, and even in illuminating gas.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Fifteenth Annual Congress, held in New York on Monday, Tuesday, and Wednesday, May 22, 23, and 24, 1893.

The President, Dr. MORRIS J. ASCH, of New York, in the Chair.

Diphtheria: its Prophylaxis and Treatment.—Dr. BEVERLEY ROBINSON, of New York, read a paper opening a discussion on this subject. (See page 148.)

Dr. J. C. MUEHLLER, of St. Louis: At the last meeting of the association I said something about house posting in the prophylaxis of diphtheria, and that remark gave rise to this proposed discussion. I expressed myself strongly in favor of posting houses, and Dr. Robinson was just as strongly opposed to it. He has, however, said nothing concerning the very point which last year gave birth to this discussion. Looking at the question from this point of view, I should like to relate a case or two of some interest, inasmuch as they have to do with the prophylaxis of diphtheria. In St. Louis a child was taken seriously ill and was attended by a homœopathic physician. It was a case of diphtheria, but, at the request of the members of the family, the physician did not post the house. Some three or four weeks afterward the child appeared on the street with a bandage about the throat. The children in the immediate neighborhood were very glad to see it again, and they interviewed it, etc. The child had a whistle which he allowed the child who lived in the next house to use. This second child contracted diphtheria on the fifth day and died. Three other children in the block, who, as was subsequently learned, also blew into the whistle, were attacked with the disease; all three recovered, one, however, with post-diphtheritic paralysis, which lasted for four or five months. Now, I maintain that had the first house been posted in accordance with the law, the mother of the second child, who is very punctilious, would not have permitted her child to play with the child that was convalescing from diphtheria. The contagion of diphtheria is very seldom portable, for if it were, the disease would be more common than it is in doctors' families. The following, however, is an interesting case, and illustrates that the contagion of the disease may be carried by the patient for three or four weeks after convalescence: An Indian child was taken with diphtheria in St. Louis, involving the nose, larynx, and pharynx. It recovered after intubation. I was the consulting physician. Dr. William Barker succeeded in saving this child's life. During the third week of convalescence the child was sent to the home of its parents in North Topeka. The parents had a little farm four miles from North Topeka. There was no diphtheria in Topeka—and certainly none in the country four miles from its suburb, North Topeka. This Indian child took with her a doll with which she had played during her illness. On the fourth day after her return home her sister, aged four years, was attacked with diphtheria, and died with that disease after five days. This goes to show the portability of the disease by the patient or its playthings. As Dr. Robinson said in his paper, the bacilli may be found in the throat five weeks after the membrane has disappeared.

Prophylaxis by means of disinfection has more reference to the children themselves than to their surroundings. I am perfectly in accord with Dr. Robinson that sulphur fumigations have no effect whatever in stemming the contagion. I have

seen houses fumigated in this way after the occurrence there of diphtheria, and two months afterward treated other cases of the disease in the same house. Even with the aid of vapor, sulphur fumigations can not prevent the recurrence of the disease in a house.

It is true that the attendants in the sick-room do sometimes acquire diphtheria. In one case two children had diphtheria and recovered, and their father, who had nursed them, was then attacked with it and died in three days. The personal prophylaxis of children consists, therefore, in not allowing them to associate with or go near any child within five or ten weeks after it has recovered from the disease. The condition of the soil, the condition of the throat, has everything to do with the question of whether a child shall become diphtheritic or not. The personal prophylaxis is very important. Children with good hygienic surroundings and whose mucous membranes are in a perfectly tonic condition seldom acquire diphtheria or any other contagious disease. Children with enlarged tonsils are the ones who usually contract the disease.

As to the attire of the physician who enters the sick-room, I do not think this point is of such great importance, as it has been proved that diphtheria is seldom carried by the doctor. Why then attire ourselves in this armor? I know of one physician who, when he enters the sick-room, always puts on a rain coat and a skull-cap and disinfects his hands afterward. He has a heavy moustache, but this he never disinfects or shampoos after leaving the room, which is not consistent with his other precautions, as I think the hairs are more likely than anything else to carry the contagion.

As to treatment: I wrote a paper about five years ago in which I stated that, as far as my experience went, there were two things to be attended to. One was to sterilize the upper air passages, and the other was to maintain the nutrition of the child. Beyond these two measures I had very little faith in anything else, including drugs. I maintained then that it was a mistake to irritate the child by constantly cleaning the throat. It makes a great difference whether the child is a well-disciplined or a spoiled child. If you have to deal with a child that shrinks and fights when you ask it to show its tongue, there is not much use in direct personal disinfection, because the constant struggle causes more harm than you can do good by attempting to sterilize the upper air passages. I showed that the gentlest way of doing this was by means of a common household syringe. This is done by removing the hard rubber point from the syringe, have the child lie on one side, introduce the point of the syringe into the pharynx, and wash as hard as you please; not a single drop enters the larynx. It is prevented by the reflex movement of the base of the tongue. I also introduced a nasal syringe for the purpose of cleaning the nares in diphtheria; the opening of this syringe was very large, so that it was impossible to throw a violent stream. I endeavored to show the importance of disinfecting the posterior nares, on account of the plentiful distribution of the lymphatic tissues in that location, and the consequent great danger of the rapid absorption of ptomaines. This can not be done by means of sprays or the household syringe, because of the contraction of the soft palate. I prefer the compound solution of iodine, variously diluted, to any other remedy for cleansing purposes. I desire to pay tribute to Dr. Park, of New York, for his grand investigations of this subject. He informs us that it takes fourteen hours to positively determine the presence or absence of the Klebs-Loeffler bacilli in the exudate. It seems to me that until the diagnosis is positive, all cases at all suspicious should be treated as diphtheria. If it proves to be something else, we have done no harm.

(To be continued.)

Book Notices.

Sciatic Neuritis: its Pathology and Treatment. By ROBERT SIMPSON, L. R. C. P., L. R. C. S. Bristol: John Wright & Co., 1893. Pp. 46. [Price, 1s.]

THIS little brochure reviews the history of sciatica, giving an excellent *résumé* of the pathology of the disease, and the author urges the use of massage in its treatment, not to supersede appropriate medicinal treatment, but as an adjunct in arousing the diseased nerve structure to normal functional activity.

Circumcision: its Advantages and how to Perform it. By M. CLIFFORD, L. R. C. P. Lond., M. R. C. S. Eng. London: J. & A. Churchill, 1893. Pp. 23.

THE author states that he brings out this pamphlet in order to present the details of the methods he adopts in performing circumcision. We do not believe that it is either well known or accepted by even a minority of the profession that a long prepuce causes the catalogue of ills the author notes; in fact, many of these conditions, especially masturbation and reflex neuroses, are observed in the children of Jews, who have been deprived of their foreskins. The author advocates the familiar operation of removal of the prepuce, with a shield to guard the glans, the incision being parallel with the line of the corona glandis; certainly not a new operation.

BOOKS, ETC., RECEIVED.

A Treatise on Ophthalmology for the General Practitioner. By Adolf Alt, M. D. Second Edition, revised and enlarged. With One Hundred and Forty Illustrations. St. Louis: J. H. Chambers & Co., 1893. Pp. xv-330. [Price, \$3.50.]

Health's Practical Anatomy: a Manual of Dissections. Eighth Edition. Edited by William Anderson, F. R. C. S., Surgeon and Lecturer on Anatomy at St. Thomas's Hospital, etc. With Three Hundred and Twenty nine Engravings on Wood. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xviii-744. [Price, \$5.]

The Clinical Uses of Prisms, and the Decentering of Lenses. By Ernest E. Maddox, M. D., formerly Syme Surgical Fellow, Edinburgh. Second Edition, revised and enlarged. Bristol: John Wright & Co., 1893. Pp. xi-170. [Price, 4s. 6d.]

Sciatic Neuritis: its Pathology and Treatment. By Robert Simpson, L. R. C. P., L. R. C. S. Bristol: John Wright & Co., 1893. Pp. 46. [Price, 1s.]

The Use and Place of Caustics in the Treatment of Cancer. By Daniel Lewis, M. D., New York. [Reprinted from the *Annals of Surgery*.]

The Reconstruction of the Pelvic Structures in Woman. The Advantage derived from the Use of the Buried Tendon Suture. By Henry O. Marcy, M. D., Boston. [Reprinted from the *Transactions of the American Association of Obstetricians and Gynecologists*.]

Analysis of One Hundred and Thirty-three Cases of Hernia operated upon for the Purpose of Radical Cure. By Henry O. Marcy, M. D., Boston. [Reprinted from the *Journal of the American Medical Association*.]

Inguinal Hernia in the Male. By Henry O. Marcy, M. D., Boston. [Reprinted from the *Transactions of the Southern Surgical and Gynecological Association*.]

Enteroptosis, or Glenard's Disease. By Max Einhorn, M. D., New York. [Reprinted from the *Post-graduate*.]

Dietetics in Diseases of the Stomach. By Max Einhorn, M. D., New York. [Reprinted from the *Medical Record*.]

My Recent Urethral Work—Catheterization of the Ureters. By Howard A. Kelly, M. D., Baltimore. [Reprinted from the *Annals of Gynecology and Pædiatry*.]

Twenty-ninth Report of the Trustees of the Boston City Hospital: with Report of the Superintendent, the Medical and Surgical Statistics, Rules for Admissions and Discharges, Prospectus of Training School for Nurses, Rules for the Convalescent Home, etc. For the Year, February 1, 1892, to January 31, 1893.

Du traitement des abcès du sinus maxillaire. Par le Dr. A. Cartaz de Paris. [Extrait de la *Revue internat. de rhinologie*, etc.]

A Dictionary of Medical Science: containing a Full Explanation of the Various Subjects and Terms of Anatomy, Physiology, Medical Chemistry, Pharmacy, Pharmacology, Therapeutics, Medicine, Hygiene, Dietetics, Pathology, Bacteriology, Surgery, Ophthalmology, Otology, Laryngology, Dermatology, Gynecology, Olistetrics, Pædiatrics, Medical Jurisprudence, Dentistry, etc. By Robley Dunglison, M. D., LL. D., late Professor of the Institutes of Medicine and Medical Jurisprudence in the Jefferson Medical College of Philadelphia. Twenty-first Edition, thoroughly revised and greatly enlarged, with the Pronunciation, Accentuation, and Derivation of the Terms, by Richard J. Dunglison, A. M., M. D. Philadelphia: Lea Brothers & Co., 1893. Pp. xi-1181.

Chloroma and its Relation to Leukæmia. By George Dock, M. D., Ann Arbor, Mich. [Reprinted from the *American Journal of the Medical Sciences*.]

Report of the Trustees of the Newport Hospital, presented to the Corporation at its Twentieth Annual Meeting, July 11, 1893.

Concentrated Rays of the Sun (Solar Cautey) as a Remedial Agent. By O. V. Thayer, M. D., San Francisco. [Reprinted from the *Pacific Medical Journal*.]

Miscellany.

Mr. Ernest Hart on the Profession, the Public, and the Code.—Mr. Hart has kindly supplied us with advance proof of a stenographic abstract of the address delivered by him at one of the general meetings of the First Pan-American Medical Congress. It reads as follows:

Sir Astley Cooper, one of the greatest surgeons and most accomplished gentlemen of the last generation, was in the habit of addressing every candidate for membership of the Royal College of Surgeons of England, of which he was president, somewhat in the following words: "Gentlemen, you are about to enter on a noble and difficult profession; your success in it depends on three things: First, on a good and thorough knowledge of your profession; second, on an industrious discharge of its duties; and third, on the preservation of your moral character. Without the first—knowledge—no one can wish you to succeed; without the second—industry—you can not succeed; and without the third, even if you do succeed, success can bring you no happiness." Those words might form a very adequate summary text for guidance of the conduct of all medical men. And it might conceivably be asked whether there is any necessity for a more detailed and elaborate code. Indeed, it practically has been asked, and there are large questions involved in the decision. On the other hand, it has, from time to time, lately, in our country been found necessary to re-enforce and strengthen our code by additional declarations, and I think to some extent

in yours; the need for a stringent upholding and development of the code has also become a question of the day. I think it is clear that if ever there were such necessity, at no time could it be stronger than at the present moment. For under the stress of the modern social development, under pressure of the modern temptation for advertising and the severity of competition, in view of the arts of those who make advertisement a business and a profit; in presence of the temptations held out to draw medical men from the ancient paths of modesty and self-effacement, there is now stronger reason than ever to fortify ourselves against those growing and innumerable seductions by a code so exact, so far reaching, that the physician need never be in doubt as to what is his duty in any complication, or in the face of any doubtful case in which he may be inclined to give himself the benefit of the doubt.

But, first of all, I want to elaborate the view that our rules of medical etiquette stand upon a logical and strong basis, and that their strict enforcement is for the benefit of the public, at least as much, if not even more, than for the benefit of the profession. Medical etiquette has been sneered at by shallow cynicism as mere trades unionism. It is, on the contrary, a self-denying code which is made in the interests of pure morality, and for the benefit of the public far more than for the interests of the profession. This allegation of trades unionism is the converse of that of intility, which those who are prone to call themselves of the younger school allege; but not even the youngest of us, as you know, are infallible, and in this matter it is the youngest who are most likely to go wrong. They proclaim themselves liberals. Is it, however, in some cases, the liberalism of Gallio? Let us look at this matter from the largest and most liberal standpoint. Let us begin by comparing our code with the standards of the legal profession.

My distinguished friend, Sir Edward Clark, lately the Solicitor General of England, in writing to me on the subject, recently said the essence of the matter might be summed up in a very few words: "Every lawyer ought to be a gentleman, and ought to do only what is right and honest; if he does not, other men ought to have nothing to do with him." Notice that "if he does not, other men should have nothing to do with him." That position of the bar should be strengthened by this, that the etiquette of the bar is absolutely in the hands of the bar circuits and attorney general, and that of the solicitors in the hands of the Incorporated Law Society; so that any solicitor who is guilty of an offense, whether as a lawyer or as a gentleman, can be, and from time to time is, not only temporarily suspended, but deprived of the right to practice at all. In a case tried last July in England, a solicitor in a certain town had been the proprietor of a house used for an immoral purpose, of which he received the rent. That was considered a stain upon his character as a gentleman, and for that he was suspended from the roll and excluded from practice. So that we have at least the example of the legal profession, who have a code even stricter than ours, in insisting upon a high standard of honorable conduct in the profession.

Legal etiquette prescribes certain technical acts which a lawyer must not do. An eminent American lawyer, whom I had the pleasure of meeting, mentioned to me, for example, that he may not conduct a "speculative suit"—that is, he may not conduct a suit in which his pay is to depend on the success of the suit—a palpable restriction on his liberty. Liberty is a blessed word, but compulsion is, under certain circumstances, often a more blessed word. The reason for this rule is that if a lawyer undertakes such a suit he becomes personally and financially interested in the result, and may be tempted not to give the Court all the aid which is his duty, or may in the end lose the relations of harmony and respect which are indispensa-

ble between the Court and the lawyers, who are officers of the Court and are bound to help Justice to duly balance its scale.

In the same way "champerty" is a legal offense. So, too, no respectable lawyer will give separate advice upon a case which is already in the hands of a colleague. As between advocate and advocate, harmony, courtesy, and the forms of friendship must prevail; and at any time they must in the interest of the client be able to come together and to seize the earliest opportunity of avoiding litigation by compromise or mutual settlement, where it is possible and right. The etiquette of the bar is very strict, and is closely observed.

Legal etiquette is, like medical etiquette, a code of honor and of duty by which the public benefit; and those who depart from it or deride it—"legal shysters" I think they are called in the United States—are not, any more than medical quacks, those of whom their country or their profession have most reason to be proud.

I will pass at once to the consideration of our code of medical etiquette. I will ask you to consider whether you are of the opinion that it is safe or wise to cast aside the precedents of past experience and to substitute individual judgment for settled rules. If man were a purely abstract and perfectly moral intelligence, no doubt few words would suffice to legislate for his daily needs. Enough to say, "Do unto others as ye would they should do unto you."

But medical men are not pure creatures of perfect and abstract morality any more than other men. They have, indeed, certain advantages from the outset. From the very beginning of their professional life it is impressed upon them by their teachers that their profession is a *mission and not a trade*; a mission involving frequent self-sacrifice and a steadfast regard for interests other than their own. In this they are greatly helped by the force of precedent, by the example of those around them, and of the leaders whom they most respect. But even these are inadequate. Without the aid of the written as of the unwritten law, even the best of men are apt to decide *wrongly in their own favor* on a doubtful question of ethics, and often in matters and cases where there are settled instructions in the code which would guide them rightly.

Let me read to you a few of the rules of our College of Physicians, which command with us a universal adhesion and respect. I do so only as an example of the conclusions to which many years of observation of the impingement of the forces of modern life on professional duty have led some of our wisest heads. I will refer only to a few as follows:

"No candidate shall be admitted to examination who refuses to make known, when so required by the president and censors, the nature and composition of any remedy he uses."

"That the practice of medical authors frequently advertising their own works in the non-medical journals, and especially with the addition of laudatory extracts from reviews, is not only derogatory to the authors themselves, but is also injurious to the higher interests of the profession."

Again, "No fellow, member, or licentiate of the college shall officiously, or under color of a benevolent purpose, offer medical aid to, or prescribe for, any patient whom he knows to be under the care of another doctor."

A further rule prescribes that no physician shall himself assume any special designation of therapeutic method, such as homœopath, electropath, hydropath, or countenance those who do so.

Again, "A physician shall have no interest in a secret medicine, and that he shall always, when called upon by the college, disclose every part of the composition of his medicines."

"If it shall at any time hereafter appear, or be made known

to the president or censors, that any fellow or member of the college has obtained admission into the college or that any licentiate of the college has obtained the license of the college by fraud, false statement, or imposition, or that any fellow, member, or licentiate has been guilty of any great crime or public immorality, *or has acted in any respect in a dishonorable or unprofessional manner*, or has violated any statute, by-law, or regulation of the college, relating to fellows, members, or licentiates, as the case may be, the president and censors may call the fellow, member, or licentiate so offending before them, and having investigated the case, may admonish or reprimand, or inflict a fine; or if they deem the case of sufficient importance, may report the case to the college, and thereupon a majority of two thirds may declare such fellow or member or licentiate to be no longer a fellow, member, or licentiate, as the case may be, and his name shall be expunged."

Let us consider now those restrictions which operate to forbid a medical practitioner to consult with "homeopaths," and of which the wisdom has been by some disputed. We do not believe, and we can not appreciate the medical capacity or fitness to undertake the treatment of disease of those who hold that drugs which, given internally, will produce certain symptoms of disease are the appropriate remedies for those maladies. For instance, medicines which produce skin reddening for erysipelas; leucorrhoea for leucorrhoea; syphiline for syphilis. We do not agree that all chronic maladies arise from syphilis, sycoosis, or itch, and that medicines act with an intensity proportionate to the infinite diminution of the dose, or that there is any utility in prescribing, in accordance with these principles, say a decillionth of a grain, when we all know that a dose so small, if taken by every being on the globe once a minute would not finish the grain in thousands of years. Nor, again, do we believe that the activity of medicine increases in the ratio of the number of shakes given to the vessel containing it. We hold that we have nothing in common with those who assume to base their practice and theory on this kind of therapeutics. Being well assured that these methods and this theory are absolutely delusive, the negation of reason and the acme of folly, it would be useless, deceptive, and contrary to good faith and the public interest that we should pretend to consult with those who profess them and who take a designation derived from them, and to cover with the respectability of logical science what they are pleased to term their system of treatment. Faith curing it may be, but in that too we can take no part under false pretenses.

But then it is said, What if the physician or surgeon of good standing is only called in by the homeopath to assist in diagnosing the nature, the stage, the complications, or name of the disease? Ought he not to give this help for the patient's sake? The answer is, the physician is a healer; not a reader of riddles nor a conner of conundrums. He is there not to give a name to symptoms or pathological conditions, but to heal the patient; and if he knows that his solution of the riddle is not to be followed by a method of treatment which he considers capable of attaining that result, he would be infamously wrong, and he is always wrong when he gives the cover of his accepted position, of his recognized ability, and his professional sanction, to what becomes under such circumstances a dangerous farce or a deliberate fraud. The riddle is read, but the patient is none the better.

But it is said, May a regular medical practitioner not be called in to perform a difficult surgical operation? If a surgical operation meant only cutting, sawing, and sewing, it would be a plausible excuse for the surgeon accepting the responsibility of acting as sawbones to a quack. But there is no surgical operation which does not, in its preliminary stages, and may not

in its various phases and sequels, require concomitant medical consideration and treatment, or in which septic, constitutional, or accidental complications may not arise. The surgeon can not honorably, in the interest of his client, divest himself of the responsibility for the wise and faithful treatment of these as an essential part of his operative interference.

I have used the word quack. It is a word often used now in too restricted a sense. This is Dr. Johnson's definition of a quack: "A boasted pretender to arts which he does not understand; a vain, boasting pretender to physic, one who proclaims his own medical abilities in public places; an artful, tricking practitioner in physics." This strikes at the root of the matter now as then. Observe, here is no distinction between those who have degrees and those who have not. The great lexicographer makes no distinction; neither do I.

The essential note of the quack is love of advertisement. The public "places" of Dr. Johnson's time were the coffee-houses; they are now the newspapers. Now, what are the ways in which the diplomaed quacks adopt the methods and become the imitator, the rival, the accomplice of the undiplomaed? You may know them by their works. They are the gentlemen who put themselves forward to be interviewed, and are the sham Jupiters and willing Mercuries of the newspaper world. They confide to the ubiquitous reporter what is their opinion of the last new bacillus, the last new antitoxine, or invite reporters to their amphitheatre and hospital ward. All this is only an outcome of the venal desire for advertisement. They are the gentlemen who, if they have the good fortune to attend a prize fighter or a ballet girl, or the ruler of a State, are not slow to disclose the secrets of the sick-room, and all for the public good.

Now, in the venerated oath of Hippocrates, which is the foundation of our code of to-day, the disciple swears to impart the knowledge of his art to others according to the law of medicine, and to share with his colleagues by precept and every other mode of instruction all that he knows. He further binds himself that he will have no medical secret, that he will practice his art and pass his life with purity and holiness, that he will abstain from every voluntary act of mischief and corruption, and that *whatever in connection with his professional practice he sees or hears in the life of men which ought not to be spoken of abroad he will not divulge*. "While I continue to keep this oath unviolated may it be granted to me to enjoy life and the practice of the art respected by all men and in all times. But should I violate this oath may the reverse be my lot."

This is the spirit of the modern British code, and I know well it is yours also.

We have dwelt as long as time will allow on the considerations of public utility and professional duty which oppose consultations with homeopaths and their congeners; nor can I stay long to discuss the prohibition of open advertisement. The advertisement in the lay press of medical books intended for the profession; the submitting of technical books to review; the public criticism of the treatment of any disease or person; the thousand and one acts, in fact, by which the advertising surgeon physician seeks to gain the ear and favor of the public by means of notoriety or self-proclamation in place of hard honest work, real professional worth, and the judgment of those whose knowledge makes them alone competent to judge. Self-advertisement is the note of the quack. It is as dangerous to the public as hateful to the profession, for it misleads the masses by substituting easily purchased notoriety for merit, and covering by loud talk and bombast and plausible pretenses the emptiness of the shallow pretender. It covers also with a pseudo-respectability the venal corruption by which whole columns and pages

of reading matter of the newspaper are very frequently devoted to quack nostrums and "treatments"—save the mark—often of the most fantastic, false, and dangerous character. It destroys the landmarks of honor and reticence, when successive numbers of the daily and weekly papers are found the lucubrations of these pests of society, and, alongside of them, the interviews, the explanations, and the descriptive narratives put forth for the public good by reputable physicians, *à propos de lottes*, but hardly-veiled self-advertisement.

It is, however, only fair that the physician should have notice of the offense or its penalties, and that this salve which he puts to his conscience should be rubbed off. Hence the value of "A Code." We have seen that the medical man is prohibited from deriving any profit directly or indirectly from any medicine which he uses or recommends, and from tampering, however remotely, with secret medicines. If this were merely an arbitrary rule, if it were not at least as much for the benefit of the public as well as for the practitioner, there might be ground for calling it in question. But it is a rule of the highest public import.

That a healer, whose judgment in prescribing should be clear and unbiased, should possess and profit by a secret remedy is as obvious a source of public peril as it is a heinous offense against professional morality. Every physician has a traditional and immemorial right to expect from, and he is bound to give to, his fellow-practitioners every possible aid and assistance in the treatment of disease and in the healing of the sick. He has received such knowledge from his predecessors; he daily and continually receives it from his colleagues and contemporaries, to whose knowledge and experience, and from the results of whose investigations (openly stated and submitted to critical discussion) he owes the great bulk of his knowledge and of his ability to practice at all.

A new method of treatment, a new drug, or a new dogma in medicine is like a new doctrine or a dogma in theology. The one is as much a means of physical salvation as the other is of spiritual salvation. The man who keeps either of them to himself, as a profitable secret for his own mean gain, is a traitor to his profession; he is also a traitor to humanity, and he is false to his mission. It is fitting that the code should provide for such cases and that the penal clause should not remain a dead letter.

But it is sometimes suggested that the usefulness of the "secret" drug may be so great as to overpower and outweigh morality, and call for its prescription. I put it to you all, Is there any foundation for such an assumption in the whole history of medicine? In the whole history of the past can we recall any example of a secret medicine which had aught but the most insignificant value, or could not easily be replaced? We may take even the most famous, such as the famous remedy of Mr. Stephen, for dissolving stone in the bladder, for the divulging of which eminent men petitioned Parliament for a grant of £5,000. It was granted, and what do we read of the remedy when divulged? That it consisted of calcined eggshells or of lime obtained by a filthy and obscene process. Naturally, and like *all* secret remedies when divulged, it ceased to cure. Hartley—the famous Dr. Hartley—one of the most strenuous supporters of the grant, died of stone in the bladder after taking two hundred pounds of the remedy. In our day there is no such thing as a secret remedy in the true, or in any other than the trade meaning of the word. We doctors know the composition of all of them. They are secret only to the gullible public, to whom they are to be sold. Pain annihilators, blood-purifiers, vegetable and animal extracts, botanical nostrums, invigorators, electric belts, amulets and chains, Asiatic, African electrical pills and phials, "green, blue, and yel-

low electricity"—there is nothing secret about them. When examined in our private or public laboratories they are all found to be commonplace in composition, or if they have anything not well worn in use, it is merely the name of some indifferent or trivial matter—Indian grass or African leaf added, most often, and chiefly for the sake of novelty. These secrets are trade devices, with which we are not concerned. Let us visit those physicians who dabble in them with the severity of the code. I don't think that is asking more than is due to the honor of the professional body and the welfare of the public.

In respect then of secret medicines, at least, the world has up to this date lost nothing by the stern and scornful disapproval with which the medical profession regards these tricky nostrums, and by the punishment with which they visit, and always ought to visit, those who sell the honor of their calling and the free communication of medical knowledge which is the birthright of mankind for some mess of commercial pottage.

Finally, I will say a word or two of what is known as the etiquette of consultation. The patient, it is said, and is said cogently, has the right to determine whom he shall consult and to change his medical adviser if he desires so to do. No one will dispute that. But, like other rights, it is limited by the legitimate claims of others; and a medical practitioner may justly object if he shall be, without explanation or courtesy, superseded in attending on a case. In such event, moreover, the superseding practitioner is morally and ethically bound to take due care that the same courtesy and respect which he individually would expect to receive be paid to his discarded colleague, not only by himself, but by those who have professionally consulted him.

Every day cases of this kind occur; few days pass without bringing to me some complicated question arising out of them. The pages of our *British Medical Journal* are full of such questions. Very often, all I have to do is to say, See Code, page so and so, section so and so, and that decides both the practice and the principle. Probably if that is the case with us, it might occur here also, and not less frequently. Of one case I became cognizant here only the other day. An eminent doctor in a capital city of the United States of America was called in, came and saw a patient severely ill, said he would return; when the family physician returned in the evening he was told, "But you are not any longer in charge; Dr. so and so has charge of the case." He said: "But I don't understand, I was here this morning." "Well, it was the particular wish of — that the consulting physician whom you called in shall take charge, and you are not wanted." *Erit* family doctor.

Once more our College of Physicians explicitly directs that the physician called in to consultation by a brother practitioner shall not express directly to the patient his individual views and the conclusions at which he arrives, but that whatever he has to say shall be said after consultation with the practitioner, and through his mouth; that he shall behave with the utmost courtesy and forbearance to such practitioner, to whom shall be left all explanations and statements of the conclusion resulting from the consultation. Were it otherwise, were consultants authorized to supersede or to snub the family doctor, the public client would be the first to suffer, for anything which creates ill-will or unnecessary friction between consultant and family practitioner tends to limit the range and frequency of consultations. Therefore is it forbidden to the consultant called in subsequently to assume the sole charge of that patient, however he may be entreated to do so, or under whatever inducement. Were it otherwise, the attending or family physician could not call in a consultant without the fear being before his eyes of losing the charge of his patient. There would arise at once the temptation to limit and restrict consultations, and this

would be an impediment in the way of ascertaining the best means of cure by consultation. The strict observance of such rules and of the whole code as to consultations may sometimes be something of a personal trial to the patient, something of a personal loss to the consultant; but it is a rule which is of infinite importance to the public welfare.

The maintenance of a high standard of professional honor, the acceptance, adoption, and enforcement of a detailed code of professional etiquette, the agreement by all and the observance by every individual of the whole range of limitations and restriction, which are set up by that code and by the logical deductions from it—these things are, I contend, demonstrably as valuable to public welfare as for any professional interests concerned or supposed to be concerned.

I infer from the repeated and enthusiastic plaudits with which you have honored me that the opinions and conclusions which I have ventured to bring before you have agreed with your sentiments and are accepted by you sympathetically, and that you consider them opportune and proudly useful.

I have been encouraged by your continuous signs of general and warm approval to speak at greater length than I had intended. But there is yet much more to say. In thanking you now for this most gratifying ratification by the unbroken plaudits of this representative general meeting of the argument which I have ventured to state, it seems to me, of great importance to such progress or fair ethical development, I will only add that I shall be most happy to hear privately from any one who has doubts to solve or arguments to suggest, either for or against or in supplement of those which I have developed before you.

The Duty of the State to the Insane.—This may be summarized, according to an article by Dr. Andrew MacFarlane, of Albany, published in the October number of the *Popular Science Monthly*, as follows:

1. Separate treatment of curable and incurable under one medical executive.

2. For the curable cases, true hospital treatment, with all the medical skill, nursing, and care, regardless of expense, which the character of the case demands.

3. Simple, humane, custodial care at moderate expense, for the incurable.

The principle of separation of the recent from the chronic cases has been more or less adhered to in this State since the founding of the Utica Asylum in 1843. The recent State Care Act, however, makes no such provision, but directs that all the insane in each district be placed in one institution. It is true that \$4 25 a week is paid for each patient during the first three years against \$2.50 afterward, but this simply results in raising the general standard of care, at the same time failing to accomplish the purpose for which it is intended. There are many cases unmistakably incurable on admission, and for these only \$2.50 should be paid. On the other hand, no special provision being made for curable patients, they fail to receive any direct benefit from the larger amount paid for their maintenance. The time is therefore ripe for the establishment of an annex to each State hospital, which shall be conducted on the same plan as a general hospital, and in which curable patients can receive the energetic treatment demanded by their condition. A State hospital containing a thousand patients is now provided with a medical superintendent, five assistant physicians, and a woman physician. Not more than a hundred of the thousand patients—probably only sixty—can be regarded as suitable for the kind of treatment suggested. The remainder require kind custodial care only, under such medical supervision as could easily be given by two or three of the physicians.

The other physicians could thus be left free to devote themselves to the promising cases, and such patients could be placed in small, home-like cottages containing a separate room for each patient and a general sitting-room. The most rigid methods of physical examination should be employed when possible, including examinations of the blood and excretions and the use of the sphygmograph and ophthalmoscope; and baths of all kinds, electricity, and massage should be available as therapeutic measures. Special medical skill, experienced nurses, and means of mental diversion and occupation, such as are necessary in many cases, are already to be found at the State hospitals, and for this reason the plan suggested is much better than the establishment of separate hospitals for the acute insane and better than that of special wards or pavilions attached to general hospitals.

The nurses for service in the annex could be selected from those already employed in the hospital, and their number should be sufficient for every need. Associated with them should be several others who had received their training in general hospitals. The latter would be more likely to regard the cases from a purely medical standpoint, and thus a better spirit would be infused into the work of all.

The medical spirit would be more easily kept up among the physicians also. It is well known that, as matters are at present, physicians in hospitals for the insane are so handicapped by extraneous duties pertaining to the employment and diversion of the patients, interviewing their friends, and supervising the correspondence, that the medical spirit too often declines as the years go by. The British Medico-psychological Society, in discussing the best method of preventing this, concluded that the following conditions were desirable:

1. Classification—the curable from the incurable.
2. Hospital treatment for the curable.
3. Training for the attendants.
4. More physicians, and a rearrangement of duties.

The truest economy would also be consulted in thus making a vigorous effort to restore the curable patients to active life. They come from the strong, productive classes, often but temporarily overcome by ill-health or care. Those classed as incurable, on the other hand, are often mental incapables to start with, the victims of degeneracy in their ancestors, the last step before the extinction of the family. The average duration of life of the chronic insane is twelve years, and the cost of maintenance of each about five thousand dollars. To prevent as many as possible from lapsing into incurability becomes, therefore, the truest economy.

The cost for each patient in the annex proposed would certainly not be over ten dollars a week. If eighty of the thousand patients were thus provided for, and the remaining nine hundred and twenty cost three dollars a week each, the total weekly cost would be three thousand five hundred and sixty dollars. Under the present arrangement the average weekly cost for each patient is three dollars and fifty cents, or three thousand five hundred dollars for a thousand. The difference in expense is, therefore, very slight.

The evil effects arising from associating the recent subjects of insanity with the chronic are well known. The derisive remarks of the latter, their delusions, their offensive words and actions, and the possibility of a similar fate and long detention, add a horror to the situation which can be barely imagined, and serve to strengthen delusions and intensify morbid fancies by giving them an air of reality. The plan proposed would do away with these conditions. Moreover, it is by no means a theoretical suggestion only, as it is already in practical operation in Strassburg and Heidelberg and is contemplated in Scotland.

Original Communications.

REMARKS ON FERMENTATIVE DYSPESIA.*

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THERE are few diseases that present greater difficulties in the way of treatment and of permanent cure than what may be termed functional dyspepsia. In using the term functional dyspepsia I wish to be understood as meaning difficulty in digestion unconnected with ascertainable lesions of the digestive organs or of the alimentary tract, and not complicated with serious organic disease of other parts. While certain alterations may exist in the digestive organs, they are temporary, at least when the disease is not of long standing, and they must disappear in cases of permanent relief. Almost all cases of dyspepsia of long standing are accompanied with more or less mental and moral disturbance, even though the periods of pain or discomfort may not be very long. These nervous symptoms I do not propose to describe. They are protean in their character and manifestations, often relieved or mitigated by moral influences, such as change of scene or occupation, without much actual improvement in digestion. They almost invariably disappear as the normal digestive processes are restored. The long-standing "peripatetic" cases, with which physicians are unhappily too familiar, have been prominent among the unsatisfactory and discouraging experiences in general practice. Such cases usually are treated with but little expectation of permanent relief, and the most satisfactory result usually to be expected has been temporary improvement by means of palliatives, and a life rendered more or less miserable by a real or fancied necessity of constant attention to diet and general hygiene. It is in precisely such cases as these—unconnected with gross excesses or indiscretions in diet, and especially with the abuse of alcoholic beverages or narcotics—that modern medicinal therapeutics seems likely to produce such results as will render the treatment of fermentative dyspepsia of a purely functional character almost as certain and satisfactory as that of any acute trivial disorder.

Flatulence is a very common attendant of functional dyspepsia. This condition may be more or less pronounced, and there are great variations in the degree to which it is tolerated by different individuals. The discomfort and distress which accompany flatulence may amount to actual pain, which is sometimes, though rarely, intense; but when pain is habitual, remedies directed to its prompt relief are merely palliative and usually do actual harm in the end. This remark is especially applicable to all forms of opiates, whether administered by the mouth or by subcutaneous injection. Contrary to the popular and, to a certain extent, the professional notion, I must apply this remark as well to the various pepsins, pancreatins *et id genus omne*, so commonly prescribed. I have

fairly full records and histories of a score or more of what may be called peripatetic cases of dyspepsia of several years' standing which have been subjected to nearly every variety of routine treatment, and these constitute but a small proportion of the cases that have come under my observation. I have yet to see, however, a single case in which any of the pepsins, pancreatins, or the physiologically absurd combinations of pepsin and pancreatin logically seemed to have produced any benefit, even of a temporary character. In certain cases in which they have appeared to act favorably as palliatives, careful inquiry has almost invariably shown an attention to diet and hygiene during their administration to which their apparently favorable effects have been fairly attributable. If this statement is even in a measure correct, it is most important that the fact should be recognized and appreciated, in view of the gratuitous instruction in the physiology of digestion and the pathology and therapeutics of dyspepsia offered so freely to physicians in the advertising pages of medical journals and in circulars by pharmaceutical manufacturers and even meat packers, and indiscreetly indorsed by members of the profession. Of late years my opinions have not permitted me to extend my experience in pepsins, etc.; but the histories of previous treatment in cases that have come under my observation, as well as physiological considerations, have convinced me that agents intended to supply an assumed deficiency of digestive enzymes are absolutely inert. I do not wish, however, to be understood as including in this condemnation the use of foods partially digested, or peptonized, undoubtedly valuable in many cases.

This subject, to my mind, is so important that it seems proper to give my reasons for the decided opinion just expressed:

Digestion is one of the most complex of the physiological processes, and even now it is but imperfectly understood. Concerning certain facts, however, there can be no doubt. It is well known to physiologists that a combined as well as a successive action of the digestive fluids is essential to normal digestion. If the food is imperfectly masticated and insalivated, especially the latter, digestion becomes difficult. It is essential not only that the saliva should exert its own chemical and mechanical action, but that it should become gradually mixed with the secretions of the stomach, and that the gastric juice should as gradually be mixed with the food, the pepsinogen being transformed as it is discharged from the peptic cells into pepsin by the action of the hydrochloric acid produced by its peculiar cells. Assuming, even, that a few grains of what is called pepsin, extracted from a pig's stomach and dried, will have the same action in the human stomach that it has on minced food in a test tube, it is by no means certain that the discomfort and distress which are sometimes observed soon after taking food are due to deficiency of pepsin. As a rule, these symptoms are produced by the undue formation of gases, which artificial pepsin is not known to have any power to control. Normally the gases of the stomach do not exist in large quantity, and probably are derived mainly from the air which is incorporated with the food in mastication, an evidence of which is the presence of a con-

* Read before the New York State Medical Association, October 12, 1893.

siderable proportion of oxygen, which is not found in other portions of the alimentary tract. When gas is formed in the stomach, it is probably due to the action of micro-organisms, and these organized ferments take no part in digestion.

It is almost inconceivable that artificially extracted digestive enzymes can find their way into the small intestine in such a condition as to exert any action in digestion. The so-called pancreatin has no existence, the enzymes produced by the pancreas being trypsin, amylopsin, and steapsin. Intestinal digestion, also, is an alkaline process; and it has been abundantly shown by experiment that it can not go on with sufficient efficiency to support life in the absence of the action of the intestinal juice, the composition of which is unknown, and of the bile, the action of which has never been clearly understood and defined. Life, indeed, can not be maintained in the absence of either the bile or the intestinal juice alone.

Gases are much more abundant in the small intestine than in the stomach; and a certain quantity of gas is essential to the proper movements of the alimentary mass under intestinal peristaltic action. The composition of the gas in the small intestine—consisting, as it does, of carbon dioxide, pure hydrogen, and nitrogen in variable proportions—shows that it is in greatest part derived from the food, even if it be admitted that a certain proportion of the carbon dioxide may be evolved from the blood. When gases are produced in excessive quantity in the small intestine, the action of micro-organisms is probably involved. It is not pretended that the so-called pancreatin has any influence in modifying or restraining this action.

In cases of functional dyspepsia it is by no means invariable that the body is badly nourished, unless the diet is greatly restricted. Many dyspeptics have an appearance of perfect health. While digestion may be slow, labored, and attended with great discomfort and even actual pain, the processes may be efficient and complete, and general nutrition may be perfect. Although such cases are exceptional, they are not uncommon. It is seldom observed, however, that a strict diet called, perhaps, antidyspeptic secures immunity against dyspepsia, although it is desirable and useful to avoid notoriously indigestible articles and those which, in individual cases, have been found to occasion distress.

In my opinion it is seldom the case that undue fermentation in the alimentary mass begins in the intestinal canal. It usually occurs first in the stomach and is continued in the small intestine. In the exceptional cases in which its origin is intestinal there is usually a deficiency of bile, and more or less active diarrhoea is present. In the great majority of cases, however, constipation is fully as common as diarrhoea, and sometimes the bowels are regular. When there is no gastric flatulence, when the digestive discomfort begins two or three hours after the taking of food, and when diarrhoea with flatus is present, it is probable that the fermentation is purely intestinal and that it continues to an abnormal degree after the residue of food has passed into the large intestine. In all cases it is important to regulate the action of the bowels, either by laxatives or by

agents that have the opposite effect. I have been lately in the habit of using Villacabras water as a laxative when constipation is obstinate. By carefully regulating the dose of this water according to the effects observed in individual cases, I have found it act most satisfactorily. Using it for any considerable time, the dose, as well as the frequency of its administration, may be diminished rather than increased, and the dejections are usually easy and painless. I give before breakfast enough to produce two or three evacuations; and for two or three days after a daily movement follows. It may then be repeated if necessary and given as required. A very important point in the treatment of dyspepsia with constipation is to see that the patient acquires the habit of soliciting, without great effort, a movement of the bowels every morning at a fixed hour, resisting a desire for defecation at other times. Attention to this will sometimes regulate the bowels without the use of laxatives. In cases of undue looseness of the bowels, the remedies administered with the object of restricting fermentation will often suffice. Opium or its derivatives should never be used unless imperatively demanded by intense pain.

My main object in writing this paper is to call attention to the value of certain modern additions to the materia medica that act as antifermentatives. For many years the late Dr. Austin Flint was in the habit of using salicin in doses of about ten grains before each meal, often with remarkable success. I have used this remedy very largely and have frequently found it of great benefit; but I have lately employed other agents which seem to be much more efficient.

In nearly every case of functional dyspepsia that has come under my observation within the last ten months I have begun the treatment by giving five grains of bismuth subgallate, either before or after each meal. In some cases it seems to act more favorably when given before meals, and in others its action is better if taken after eating. In studying my records and memoranda of cases, I find that the treatment by salicin has often been unsatisfactory. The proportion of unsuccessful cases was about twenty-five per cent.; but in some cases the effects of this remedy given alone have been remarkable. I have full records of one case of severe dyspepsia of ten years' standing that was completely relieved in a week without any return, now for more than a year. The bismuth subgallate, however, is almost a specific in cases of purely functional dyspepsia with flatulence. While I have full records of a few obstinate cases, the histories of most are merely short memoranda, and of many I have no records. Since December 8, 1892, when I began to use the bismuth subgallate, I have noted only two cases in which it gave no relief, there being no evidence of organic disease. Both of these were in hysterical women. In both I used salicin and salol; and in one, salol, salicin, naphthalin, and aristol. These were cases of long standing which had resisted treatment of every kind, and they soon passed from under my observation.

I was led to use bismuth subgallate by seeing it recommended as a valuable remedy in the diarrhoea of children,

acting as a disinfectant. I first employed it in a case of dyspepsia of eleven years' standing which is so remarkable in some of its characters that I shall give farther on an account of it somewhat in detail. Its action in this case was so favorable that I began to prescribe it very largely, almost invariably with remarkably satisfactory results, and I continue to use it almost daily. I have no records of many of my cases, but have been careful to note the few instances in which I have been disappointed in its effects, with certain cases in which its favorable action has been truly remarkable. I have already mentioned the two cases in which it seemed to be of no benefit. The following are a few of the cases of remarkably prompt and favorable action: A case of alcoholism of twenty years' standing, with habitual dyspepsia for the last five or six years; bismuth subgallate gave almost instant relief; the flatulence and distress disappeared in twenty four hours, and did not return, except in a very mild degree, when they were usually relieved by a single dose. While under other treatment for alcoholism, this condition was relieved. The patient has taken no alcohol for several weeks and has no craving for it. A case of dyspepsia of four years' standing, with a chronic diarrhoea, was entirely relieved in five days by the use of the bismuth subgallate alone. A case of dyspepsia of more than thirty years' standing was promptly relieved by bismuth subgallate alone. In this case, every few weeks the trouble returns and is relieved by two or three doses. I am indeed no longer surprised at results from the use of this remedy which first seemed to me remarkable; and now I confidently expect prompt and favorable action. I have been in the habit of prescribing it in capsules containing five grains each, but lately have had it prepared in the form of tablets. In this latter form it is more convenient and seems to act more favorably.

The following case, which I give on account of certain remarkable and interesting features, is the first in which I used bismuth subgallate.

On November 16, 1892, a gentleman, about forty years of age, tall and robust, with the appearance of perfect health, consulted me in regard to a long-standing dyspepsia. He had suffered from indigestion with considerable pain for a long time, and about eleven years ago, under the advice of a physician, had adopted an exclusively milk diet. Since that time he has taken milk and nothing else, consuming about five quarts in the twenty-four hours. He has been in the habit of taking milk about every half hour during the day and at variable intervals at night. If he goes more than an hour during the day without milk he has gastric and intestinal pain which soon becomes almost unbearable, but is soon relieved by about half a pint. With the pain he has great flatulence and violent eructations. During the past eleven years he has engaged in literary work and has traveled extensively in this country and abroad. While taking milk, however, he has felt well, slept well, taken considerable exercise, and his bowels have been regular. His personal and family history is good in every respect, and a careful physical examination failed to reveal structural disease of any organ. He wished to be treated for what he called the "milk habit."

I directed him to cut off milk promptly and absolutely, and to take three meals a day without restriction as to quantity or kind of food, except that he was to avoid sweets and pastry and

be moderate in the use of wine at dinner. I prescribed ten grains of salicin four or five times daily, and always to take a dose after eating. On the evening of the first day of treatment he went to a dinner party, eating and drinking of everything. He described his sensations at the dinner as most delightful, enjoying his unaccustomed food immensely; but his teeth were sore and his jaws tired after eating, as he had not masticated for eleven years.

On the following day he reported that he had suffered intensely with abdominal pain and eructations, but nevertheless had taken breakfast, lunch, and dinner, and had abstained from milk. I continued the treatment and directed him in addition to take sodium bicarbonate five or six times daily to relieve the flatulence.

On the third day he reported that he was doing fairly well, but still suffered considerably an hour or two after eating.

On the fourth day he was about the same. I discontinued the salicin and prescribed naphthalin, five grains every four hours. During the entire treatment he took sodium bicarbonate freely and as often as he felt much discomfort from flatulence.

On the fifth day, having eaten like other persons from the beginning of treatment, taking no milk, he had slightly improved. He thought the naphthalin gave him considerable relief.

On the sixth day he was doing very well, and the treatment was continued. He had become so much encouraged that on the fifth and sixth days he took supper late at night, with some excess in eating and drinking.

On the seventh day he was not so well. The indiscretions in diet of the fifth and sixth days, as he thought, gave rise to considerable pain with flatulence and vomiting. At night on the sixth day he took about half a pint of milk, which gave great relief. I discontinued naphthalin, substituting five grains of salol every two to four hours, and allowed a glass of milk at night.

On the tenth day he reported that he had done fairly well. The treatment was continued with the addition of a glass of milk on rising in the morning.

On the twelfth day he had improved, the salol acting well. The treatment was continued.

On the fourteenth day he reported as not so well, having had a great deal of flatulence. I continued salol and prescribed ten grains of salicin before eating.

On the sixteenth day he was about the same. I prescribed a teaspoonful of listerine after eating.

On the twentieth day he reported no progress. The listerine seemed to have no effect. I discontinued listerine and prescribed ten grains of menthol as required.

On the twenty-third day he reported that the menthol seemed to act unfavorably. I then discontinued other remedies and prescribed ten grains of bismuth subgallate three times daily after eating. On the following day he went to Washington for six days.

On his return from Washington—the thirtieth day—he reported that his diet had been unrestricted and that he had been perfectly well since first taking bismuth subgallate. From time to time he took, in addition to the bismuth subgallate, sodium bicarbonate to relieve slight flatulence with eructations. He then left the city for an extended journey abroad.

In May, 1893, six months after, I received a friendly letter from the patient, in which he made no mention of any digestive disturbance.

In August, 1893, the patient called upon me and reported that he had traveled extensively, at times subjected to very unfavorable conditions of diet; that he had been perfectly well

and strong; had lost some flesh, which he regarded with satisfaction; had taken very little sodium bicarbonate, and occasionally, though rarely, a few doses of bismuth subgallate. His diet was unrestricted, and he considered himself permanently cured.

I have given rather an extended account of this case to illustrate the unsatisfactory results following the administration of a great variety of antifermentative remedies until the bismuth subgallate was prescribed. This remedy promptly produced marked improvement, and, in the light of my subsequent experience, it seems to me that if it had been used earlier the recovery would have been much more speedy.

It was not my intention to discuss the question of diet in the causation and treatment of fermentative dyspepsia. Of course, a cure is established only when a diet practically unrestricted may be used with impunity. During the treatment of these cases patients are simply directed to avoid excesses in food and drink and to eat little or no pastry or sweets.

THE WITHHOLDING OF REPORTS OF OPERATIONS FOR THE RELIEF OF CANCER OF THE THROAT.*

BY D. BRYSON DELAVAN, M.D.

It is but too well known by all that the results of the present methods for the treatment of malignant disease of the throat are in the main far from satisfactory. The sole aim of this paper, therefore, will be to urge upon those in whose power it lies the importance of increasing our practical knowledge of the subject by their contributions, and thus enabling us to judge fairly and accurately as to our actual ability to deal with this variety of disease.

In presenting it, the writer at the outset earnestly disclaims either the intention or the desire to reopen the discussion as to the relative merits of any one method of operation compared with another. Still less does he wish to throw discredit upon any method of operation which may have been employed, or to criticise any operator who may at any time, or in any place, have labored in this field of surgery. It has been his misfortune to see a considerable number of cases of cancer of the throat, and to learn from them, and from the recorded experience of others, the painfully well known fact that malignant disease of this locality, no matter of what histological character it may be, is always a most serious affection at the best, and that, occurring in the form of epithelioma, is practically an absolutely fatal one. More than once new methods have been suggested which have seemed to offer a fair prospect of increased success; some of these, in the case of the less malignant forms of growth, have proved to be of decided value. In epithelioma, however, they have generally proved unsuccessful, and the record of such as have been reported is little better than a long and disheartening series of failures. Such indeed it must appear to the patient

himself when seeking information upon this subject. The difficulties in the way of an intelligent prognosis have, up to the present time, seemed almost insurmountable. Of course, it is impossible to judge of the actual result of any series of operations until after the lapse of a considerable amount of time. With cancerous disease this is particularly the case, inasmuch as the very criterion of success of an operation is the extent to which the patient's life has been prolonged by it, and most of the operations which we have under consideration have been proposed too recently to enable us to obtain satisfactory statistics as to the actual prolongation of life which they have accomplished.

To illustrate the difficulty of obtaining accurate statistics, let us take the history of thirty operations upon the larynx in cases of epithelioma, already publicly reported or gained by the writer from private sources. They represent the work of several of the most eminent of living surgeons. Such cases should be divided into three classes: First, those in which the history is complete up to the time of the patient's death. Second, those in which, at the time of the writing of the history, the patient is still living, but suffering from recurrence of the disease. Third, those in which at the date of the history the patient is alive and well.

It is plainly unfair to confine our deductions to the reports of the first class without taking any consideration of classes two and three, as witness the following results:

In the thirty patients operated upon and dead, the aggregate of the length of life was two hundred months, or sixteen years and two thirds; but it is often stated that the average duration of life in cases not operated upon is about eighteen months from the time at which operation would be likely to give promise of some success. In my own experience, by the way, this estimate is too liberal. Assuming it, however, to be approximately correct, the aggregate length of life of thirty patients unoperated upon would be about five hundred and forty months, or forty-five years. Thus it would appear that in these unsuccessful operations there had been lost to the thirty patients no less than twenty-eight years. In so far as the record concerns class 1, this is true. When we come to compare it with collections of cases representing classes 2 and 3, however, it at once shows a wide variance. And yet, until the histories in these classes shall have been completed by the death of each patient, it will be impossible to arrive at any accurate conclusion.

Again, one of the best summaries extant is that of Kraus.* In this he studies together the cases of laryngectomy collected by various authorities after the death of Emperor Frederick. In all they number four hundred and sixty-six, fifty-nine, or nearly thirteen per cent., of which he claims as successful because in them the patients were still alive, and had not suffered recurrence for at least one year after the date of operation. But it is hardly fair to say that a case is cured simply because the patient has managed to survive one year. The lapse of a few years more would show a marked falling off, as is proved by Kraus's own statistics,

* Read before the American Laryngological Association at its fifteenth annual congress.

* *Allgem. Wiener med. Zeitschr.*, 1891, No. 15.

for, of twenty patients who lived for over one year, fifteen died before the end of the third year. Moreover, recurrence may take place after the lapse of a considerable amount of time. Even the fact that death may have occurred without recurrence is not necessarily a proof of the success of the operation, since the very demise of the patient may have been more or less directly due to his having been subjected to so severe a surgical procedure.

Discouraging as these inaccuracies may appear, it has seemed to the writer that the time was rapidly approaching when the number of cases operated upon by means of the various recognized methods would have increased to such a degree that a clearer idea could be gained of their relative value as compared with each other, and that a sufficient length of time would have elapsed to prove their ultimate results, so that the question as to whether they actually succeed in prolonging life might be definitely settled, and if they do, the approximate extent to which they may be depended upon to so prolong it. While many cases and collections of cases have already been recorded, and statistics have thence been deduced and offered to us, there is nothing which can to-day be relied upon as satisfactory in any department of this subject, either in the case of operations performed by the natural passages or of those of the more radical and heroic kind. This is not alone owing to the small number of cases operated upon. It is certainly due in part to the failure of many operators to record faithfully and fully all of their cases. Of course, it is not to be supposed that such operations are common. Doubtless they are not, and, when performed, they have not seldom proved so unfortunate that to have reported them would have been an unwelcome task. Many operators, it is true, have been most careful to publish everything connected with their work—as, for example, the excellent reports of Billroth, Hahn, Butlin, Lanz, David Newman, Cheever, Solis-Cohen, Fowler, Gerster, and others. But in this, as in other departments of medicine, it too often happens that the unsuccessful cases are allowed to pass unnoticed. Where this is the case and the successful ones alone are put on record, it is plain that the latter will be misleading and, to the statistician, worse than useless. To secure satisfactory knowledge, all cases, good and bad alike, must be reported.

It is certain that, both in this country and abroad, published records have not been made of a considerable number of important cases, but that many have been allowed to pass unnoticed, and thus the lessons that might have been learned from them lost. If the truth must be confessed, this is probably quite as true of the simpler operations from within as of the capital ones, so that in considering the question we do so entirely without prejudice. The substance of the whole matter is this: namely, that heretofore the discussion of the value of the various methods has been based partly upon theory and partly upon evidence too meager to afford substantial proof. What is needed to-day is the largest possible collection of reliable data, embracing all of the different operations which are performed for each of the separate manifestations of cancer of the throat. The gravity of the situation is such, and the need for help so urgent, that we hardly go too far when we in-

sist that a full, painstaking, and accurate account be given of the history of every malignant growth removed from the upper air passages. With such material at our command, many at least of our present difficulties and doubts might be removed, and while it would not at once be possible to solve them all, it would, without question, enable us to advise with more intelligence and to act with materially increased prospects of success.

Thus it might be definitely determined whether or not a certain operation was under any circumstances justifiable, and if justifiable at all, under what circumstances it would be likely to yield the best results. Again, much more might be learned as to the relative value of different methods—as, for example, the operation for complete laryngectomy as compared with partial, or of laryngectomy in general as compared with intralaryngeal operation, or as to whether the average duration of life was greater where a cancerous tonsil was removed by external incision, division of the jaw, and extensive dissection, than in cases operated upon by external incisions of a simpler nature.

Indeed, as we survey the field many questions arise which are in need of definite settlement and which can only be determined by the study of full and accurate statistics. Thus, a fair comparison should be made between the results of operations for the removal of tumors of the pharynx and nasal cavities by severe preliminary operations, such as Annandale's, and those in which the galvano caustic loop has been employed; between laryngectomy and intralaryngeal operation, etc. Again, one method may be found to prolong life to a greater degree than another, and yet not indefinitely extend it. Laryngectomy usually results in death within three years, even although recurrence may not have taken place. May this not be due in many cases to the general effect of the operation? Certainly in extensive operations about the nasal cavities profound shock may result from the necessary interference with the various important nervous structures in the neighborhood. Yet again, in view of the fact that the earlier statistics of laryngectomy are better than those of recent years, may it not be possible that this operation, if practiced at all, should be performed by a few highly skilled and successful surgeons, rather than committed to those whose experience in it has been limited? These are but a small part of all the unanswered questions. Let every case then be reported with careful detail, not only as to the method of operation, but, almost more important still, with clear and full description of the after-care of the wound and of the special difficulties and accidents presented with each individual, for the after-care is often by far the most trying and hazardous part of the whole matter.

And, finally, when we have done our best and have exhausted our resources, in case all of our present methods of curing carcinoma should be proved practical failures, even this unhappy result would be of benefit in destroying delusive hopes, and, what is of far greater practical importance, in stimulating us toward the accomplishment of that not impossible discovery from which it shall be learned that cancer may be cured by other means than the knife.

ARTHRITIS DEFORMANS OF THE LARYNX.*

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The propriety of the introduction of this title into laryngeal nomenclature must depend upon the final disposition by pathologists of the same question relative to arthritis deformans in general, the disease which is also termed rheumatoid arthritis. If it be conceded, as is now claimed by most writers on the subject, that arthritis deformans is quite independent of rheumatism on the one hand and of gout on the other, then its laryngeal complication, which I believe I am about to describe for the first time, will be entitled to independent consideration. If, however, the disease be eventually relegated to the class of rheumatic affections, then it is hoped only that this contribution may prove of interest as descriptive of a rare laryngeal phase of the latter disease.

Concerning the individuality of arthritis deformans, Dr. Leonard Weber, in the *Reference Handbook of the Medical Sciences*, says: "It is distinguished from gout and rheumatism by the peculiar morbid changes it produces in the articular tissues and by the absence of any known abnormal state of the blood." "The name 'rheumatic gout,' which has been given to it, is evidently a misnomer, as it is neither gout nor rheumatism."

From careful studies of the morbid anatomy of arthritis deformans, R. Volkmann, cited by Weber,† recognizes the rapid proliferation of the articular cartilaginous elements, particularly on the free surface of the cartilage, as the essential factor of the disease, together with subsequent absorption of the cartilages. Garrod‡ failed to discover any pathognomonic changes in the blood, and Weber* states that it is a fact that uric acid has not been found in the blood, and that analysis of the urine has failed to show unusual increase of uric acid or urates. Moreover, deposits of urate of sodium, which are constant in gout, are not found in arthritis deformans, and the changes which are found are quite different also from those of simple articular rheumatism. Inasmuch as Charcot and others have demonstrated an ætiological relationship to exist between certain spinal diseases and other peculiar morbid states of the joints, a trophoneurotic origin of arthritis deformans has been suggested.

Substantially the same views relative to the independence of this disease are expressed by Senator in von Ziemssen's *Cyclopædia*, and by Howard in Pepper's *System of Medicine*.

In February, 1893, I was requested by Dr. E. J. Doering, of Chicago, to see in consultation Mrs. S., a widow, about fifty-eight years of age, in affluent circumstances, but of plain habits and mode of life. She had been suffering for some weeks from laryngeal dyspnoea, which was now so severe as to occasion marked inspiratory stridor and a noticeable expiratory noise.

The laryngeal image, at the first trial, was only fairly satisfactory, but gave one the impression of acute laryngitis of moderate intensity only and without adequate explanation of the dyspnoea, for there was no oedema and the ventricular bands were so little swollen that on the phonation of the vowel "e" the vocal cords could be seen approximated in the median line. On cessation of this sound the epiglottis would fall so quickly that the cords could not be viewed during the stage of abduction. The arytenoid eminences appeared swollen and their movements restricted, but they were not grossly distorted. After a few days' training a much better view of the larynx was obtainable, and I then observed that abduction of the vocal cords could not take place, their separation at best, whether during ordinary quietude or on forced inspiration, being so slight that but the smallest possible space between them was provided for respiration. Another conspicuous feature of the view was a peculiar thickening or swelling of the posterior ends of the vocal bands, sufficiently marked to cause each posterior end to bulge perceptibly downward as well as upward, and to project into the rima glottidis beyond the line of the purely fibrous part of the cord, encroaching upon its fellow of the opposite side. The part of the vocal cord thus affected is commonly designated the cartilaginous portion, because of the projection into it, as it were, of the vocal process of the arytenoid cartilage, which gives attachment to the fibers of the cord proper, or the presence in its substance of this vocal process in the form of a sesamoid cartilage, detached from the body of the arytenoid, as described by Solis-Cohen, and because, further, of the cartilaginous film imbedded therein in female subjects, as described by Seiler. The position of the vocal process formed a distinct "line of demarcation" between this curiously thickened posterior end of the vocal cord and its main portion or purely fibrous part, the latter being congested and relaxed, but not enlarged or thickened. The appearance was suggestive of inflammatory infiltration in the deep substance of this part of the cord, and, in connection with other features of the case, it is a reasonable inference that the curious enlargement at this point was due to proliferative changes in the cartilaginous elements, especially as the arytenoid cartilage itself was likewise involved. I have mentioned that the arytenoid eminences appeared more than usually prominent, but not unequally so, and that their motion was restricted in correspondence with the want of the power of abduction of the vocal bands. It seemed reasonably certain that this inability of the vocal cords to separate was due to ankylosis of the crico-arytenoid articulations. A similar aspect could be produced only by paralysis of the posterior crico-arytenoid muscles in conjunction with acute laryngitis, but "posticous paralysis" would not be accompanied by the peculiar condition of the posterior ends of the vocal cords above described, or by enlargement of the arytenoid eminences. The stridor of "posticous paralysis," furthermore, is inspiratory only, the cords on expiration presenting upward like a dome with an elliptical space between them. Moreover, neither the history nor the subsequent course of the case would justify a diagnosis of abductor paralysis. Daily opportunities were afforded for laryngoscopic observation, and during the following two weeks the condition remained practically unchanged. The dyspnoea gradually exhausted her strength and a time was appointed for the operation of tracheotomy, but just then respiration became somewhat easier and it continued to improve until, at the end of six weeks, she breathed noiselessly and, during quietude, without conscious effort. The aspect of the larynx, however, had changed but slightly. The congestion was less marked, the vocal cords appeared paler and thinner, and the space between them on inspiratory efforts at abduction was somewhat wider, with a corresponding slight increase of motion of the aryte-

* Read before the American Laryngological Association at its fifteenth annual congress.

† Loc. cit.

‡ Cited by Weber. Loc. cit.

* Loc. cit.

noids, but the cords could not be estimated to separate, even now, more than one sixth part of the natural distance, and the arytenoid eminences and the posterior ends of the vocal cords presented the same appearances. Her larynx was again free of viscid mucus, which had intensified the dyspnea, and the cough had subsided so that the patient expressed herself as feeling about as well as usual. True labored respiration was at once excited by any considerable exertion, but to more or less of this she had been accustomed for years.

Evidently this attack had not been one alone of ordinary laryngitis, but rather of an acute exacerbation of a chronic laryngeal arthritis, an inference which is further justified both by the history and the presence of a general arthritis deformans. The patient previously had twice suffered, at intervals of two or three years, from similar attacks, the second seizure having been equally severe, but of shorter duration. She chanced at that time to be traveling in Germany, and was under the treatment of a competent laryngologist, who subsequently told her that the opening of the larynx was unusually small, and that the laryngeal disease was connected with her so-called rheumatic gout. This general arthritis has affected the patient progressively for from ten to fifteen years or more, having commenced so insidiously as to have attracted but little serious attention during its earlier years. It closely corresponds to the typical form of polyarticular arthritis deformans, as described by Weber* and others.

The joints of the right and left sides are affected symmetrically throughout, a feature which is manifested likewise in the two crico-arytenoid articulations of the larynx. The hands are characteristically distorted, and distorted wonderfully alike, displaying prominently the enlarged and nodular condition of the ends of the phalanges and the heads of the metacarpal bones. The fingers are no longer articulated in a straight line with the metacarpal bones, but are all partially dislocated outward in the direction of the little finger. The joints are stiff, but not immovable, and she has succeeded in counteracting the usual tendency to flexion of the fingers by regularly maintaining them extended against the bedding at night. The thumbs are dislocated backward. Her wrists exhibit similar nodosities and are stiffened. The elbows and shoulders are less affected, the disease having manifested itself first and most severely in the extremities, and especially in the hands. Her feet and ankles are similarly affected, but not conspicuously so. The left knee is involved to such an extent that in sitting she must maintain it in a position of extension. The hip joints as yet seem but little affected.

The patient has never had a typical paroxysm of gout or suffered from acute articular rheumatism; in fact, she states that her disease has not at any time been accompanied by pain, but merely at certain periods by a sense of discomfort which approaches pain only on forced movement of the affected joints. Nor has she experienced any pain in the region of the larynx, a point which seems further to distinguish this laryngeal complication from rheumatism, which, when affecting the larynx or pharynx, has quite invariably been described as accompanied by pain, often severe and lancinating in character. All treatment in the past and during the recent seizure formulated on the supposition that her disease might be either gout or rheumatism has uniformly and utterly failed.

Treatment directed especially to the chronic arthritis deformans of the larynx has been attempted only at times of acute exacerbation of the disease, and during the last attack it was directed chiefly toward relief of the dyspnea. She could inhale fine sprays into the larynx fairly well if the tongue were

held out and the head thrown backward. A preliminary spray of a two-per-cent. solution of cocaine would afford prompt, albeit temporary, mitigation of the dyspnea, doubtless by contracting the congested vessels of the mucosa, and would also, by benumbing the parts slightly, permit of a more thorough application of subsequent sprays. An alkaline and antiseptic spray, containing sodium bicarbonate, sodium borate, menthol, oil of eucalyptus, oil of gaultheria, glycerin, and water, served to augment and prolong the good effects of the cocaine and to cleanse the larynx of viscid mucus. Later, sulphocarbolate of zinc, ten grains to the ounce of water, was employed with benefit. As a final inhalant I would use the following soothing petroleum combination, which in this case, as in many others of acute inflammation of the larynx, trachea, and bronchi, I have used with much comfort and benefit to the patient:

R Ol. pini canadensis..... ℥v;
Ol. gaultheriæ..... ℥ij;
Ol. eucalypti..... ℥ij;
Menthol..... gr. j;
"Benzoinol"..... 3 ij;
"Vaseline oil"..... q. s. ad 3 j.

M. Sig.: To be used with a double-bulb atomizer.

The persistent use of these remedies simply served to keep the larynx free of mucus and the congestion at a minimum, but without them I am convinced that the operation of tracheotomy could not have been avoided.

After their use, especially at night, when the dyspnea seemed most urgent, the exhausted patient would obtain sufficient relief to permit of much-needed rest and slumber.

LARYNGITIS HIEMALIS.*

By J. C. MULHALL, M.D.,

ST. LOUIS.

DURING the last twelve years I have written notes in my case-books of nine cases of an affection of the larynx in which there existed such a uniformity of signs and symptoms peculiar alone to this disease, and as yet, to my knowledge, unwritten about, that I have thought it worthy of the special title under which I beg leave to present it for your consideration.

It is simply a variety of subacute catarrhal laryngitis, in which the secretions are, *ab initio*, adhesive crusts, mechanically producing dysphonia, more often complete aphonia, and occurring *alone during winter*. I have adopted the term "winter" laryngitis for the following reasons: I have never seen the disease except in winter. In several of these selfsame patients, who have had attacks of laryngitis in summer, the crust formation has not occurred, aphonia was absent—in a word, it pursued the ordinary course of a non-febrile, subacute laryngitis. Two of my patients, completely aphonic, having been sent to the warm, moist air of Florida, lost all traces of the affection—one within forty-eight hours, and one within a week after arrival in that State. One of them being compelled to return to St. Louis before our cold weather had ceased, was, on the second day of her return, seized with her former laryngeal symptoms. I have had several such experiences as the following: The patient enters the consulting room com-

* Read before the American Laryngological Association at its fifteenth annual congress.

* *Loc. cit.*

pletely aphonic. With a warm salt-water laryngeal spray, all crusts having been detached and coughed out, the voice has at once returned more or less pure. On the following day the patient has returned with the intelligence that within two hours after leaving the office the voice had again become lost. On the appearance of several successive days of warm weather in the winter these cases have rapidly improved. It therefore seems to me that continued cold weather is the important factor—the exciting cause.

The predisposing factor—that which causes the larynx to yield this perverted secretion—is as much a mystery to me as the foul perspiration of certain individuals otherwise healthy. I have found it associated with no particular diathesis, age, occupation, unhygienic surrounding or *personnel*, or faulty condition of other bodily organ, including the nose.

The crusts adhere more closely to the true than the false cords, cling with great tenacity to the inter-arytenoid fold, and are often found on the under surface of the true cords. In St. Louis they are often black, being thus discolored by the soot-laden atmosphere. The evidences of inflammation in the larynx are usually quite slight, and I have often been surprised, after having cleansed the larynx, to see the true cords white and without suspicion of erosion or thickening. In one patient, however—a saloon keeper, a slave to alcoholic and other excesses, utterly careless as to the quality of his voice, and who would only apply for treatment when he had been quite aphonic for a week or two—a general laryngeal thickening has taken place and he is dysphonic even in summer, though no crusts are ever present in this season. Each winter, however, with the first appearance of cold weather, the crust formation occurs. The aphonia and dysphonia are mechanical, the crusts preventing cord vibration and approximation, and these symptoms alone cause the sufferer to seek relief. The tickling cough is but slight, and the patient soon learns the futility of attempting to clear the throat by forced coughing, rasping, and hawking, and soon ceases these efforts.

The disease may be acute and last but two or three weeks, but may readily, without appropriate treatment, last the entire winter. It may occur but once in the lifetime of a patient, or may be a relapsing disease. It may occur with the first fall of the thermometer to 30° F., even without the precipitating factor, "catching cold." In two such cases I have not been able to satisfy myself with the laryngoscope that any inflammation whatever existed.

One not familiar with this clinical picture—for it is rare—might suggest that this is but a variety of the well-known "laryngitis sicca." This latter is, however, nearly always associated with pharyngitis sicca or rhinitis atrophica, being *sequential* to these conditions. It is essentially a chronic disease, the secretions often fetid, and is merely modified by climatic conditions. In the cases I have described there is associated no other bodily ailment.

The milder often readily yield completely to treatment. I have found hygiene, both in the cure and prophylaxis, of most importance, such as the wearing of light woolen undergarments, thick-soled shoes, without rubbers; the

avoidance of overheated apartments, especially furnace-heated houses; the sleeping in a cold room, cold-water sponging, silence in the open air, avoidance of stimulants, careful dieting, etc.

Locally, after having first cleansed the larynx, I have found a cold spray of vaseline and eucalyptol, ten minims to the ounce, two drachms to be used at a sitting, of most service. The cold, wet throat pack at night and the internal use of muriate of pilocarpine, combined with muriate of ammonia, complete what I have found to be of service.

RHINITIS ŒDEMATOSA.*

By J. C. MULHALL, M. D.,

ST. LOUIS.

SOME years ago a patient entered my consulting room desiring relief from obstructed nasal breathing. I saw nothing abnormal anteriorly, but posteriorly saw what I hastily concluded was a large, soft polypus projecting from the right nostril. I acquainted the patient with my diagnosis, and requested his return on the following day for operation. He complied, when, to my discomfiture, I saw nothing in either nostril to remove. I acknowledged my error, and began to ask questions—a proceeding I had disdained on the previous day. I then learned that the obstruction was intermittent, sometimes bilateral, again unilateral, sometimes completely absent. The discharge was scanty and purely serous. This was my first knowledge of such a nasal disorder.

I have seen since then six cases. It consists of an infiltration of pure serum into the connective tissue overlying the inferior and middle turbinate bones. It may be general or limited. For example, in a case seen by Dr. Glasgow and myself, the œdema was limited to the posterior half of the left middle turbinate, projected into the pharynx, resembled very much a cyst, and caused intense pain, lachrymation, and a flow of acrid, thin serum. The œdema is sometimes migratory. It may affect exclusively the anterior end of a middle turbinate to-day, disappear in a day or two, and reappear at the posterior end of the inferior turbinate. The discharge is usually slight and consists of limpid serum. It may be acute or chronic, the latter causing little suffering beyond that incident to obstructed nasal breathing. In appearance, when confined to a small area, it strikingly resembles a recent myxoma, especially when situated about the hiatus semilunaris or olfactory fissure; and even since my original experience I have been for a moment deceived. The probe, however, soon dissipates doubt. Unlike other vaso motor troubles in the nose, it is unaffected by cocaine: When punctured with a bistoury it very slowly yields serum. The incision heals very rapidly, and the parts can not be drained in this way. It may occur, as it did in two of my cases, in connection with bronchial asthma. Its exact relationship I have not been able to determine. I have one patient in whom I have seen it coincide with the asthma. Yet I have seen the same patient

* Read before the American Laryngological Association at its fifteenth annual congress.

suffering asthma without nasal oedema, and also suffering nasal oedema without asthma. In this patient, therefore, one may feel sure that there is a causative element common to both, selecting both vaso-motor areas—the nose and bronchi—at one time, or but one, according to the intensity of the exciting cause. In the other four cases asthma was never present. In one case the nasal oedema was chronic and unilateral; bronchial spasm of mild degree nearly always present, varied by occasional nocturnal paroxysms of great severity. The disease is certainly a neurosis, and yet stands quite apart from that class of cases where the precipitating factor is from without—such as rose cold, hay fever, ipecac or animal asthma, and the like diseases, where the reflex cycle commences in the nose. Again, it has nothing in common with that form of vaso-motor coryza characterized by sneezing, the profuse discharge of serum, often a pallid mucous membrane, occurring independently of season, occupation, or surrounding; often lasting years and readily controlled, though not cured, by a system of treatment addressed to the sympathetic system of nerves. In rhinitis oedematosa this treatment has been of no avail. It seems to me almost certain that the exciting cause is from within, and most probably intestinal ptomaines form the chemical irritant to the sympathetic nervous system.

In two cases of acute migratory oedema the affection was coincident with a mild degree of icterus, and when the jaundice had disappeared and all treatment was directed to this end, no local treatment whatsoever having been instituted, the nasal oedema disappeared. These two cases had never before had nasal disease of any kind. In three cases of relapsing oedematous rhinitis complicated with bronchial asthma there existed the group of symptoms familiarly known as biliousness. When, by treatment directed to the correction of this condition, the urine and feces had resumed their normal color and quantity, the tongue had become clean, intestinal fermentation had ceased, the appetite had returned—in a word, the alimentary canal had resumed its normal function—the asthma and nasal oedema disappeared. Relapses were always accompanied by the digestive disorder.

From analogy, since we call the one peptic asthma, we might also speak of peptic oedema. I therefore believe this disease to be always of systemic, mostly of biliary origin.

Does a predisposing factor exist by virtue of abnormal contact points in the nose? In the acute cases neither hypertrophy, deviated bone, nor cartilage were found. In two chronic relapsing cases deviations of the septum were rectified, without, however, preventing relapses. In one the patient was entirely free from asthma and nasal oedema for six months—a longer period of immunity than he had enjoyed in ten years—but relapse finally occurred.

Anatomically considered, one might expect nasal oedema in Bright's disease, but, though I have examined not less than fifty cases of chronic nephritis to this end, I have yet to see such a case. I was therefore not surprised to find in these cases no evidence of kidney trouble. It occurred at no special season of the year, exhibited no peculiarities with regard to social conditions, sex, or age,

except that I saw no case in children. The atmospheric factor plays a part. In the case of the lady, wife of an army officer, seen with Dr. Glasgow, her two attacks, three years apart, coincided with removal to St. Louis on both occasions. She quickly recovered after leaving St. Louis. In two cases permanent relief from asthma and nasal oedema followed permanent residence in southern California. Some atmospheric factor, plus deranged digestion, plus central instability, plus a hyperæsthetic nose, probably unite in the ætiology of a single case. In the treatment the one great thing not to do is to spray the nose. Even a weak spray of cocaine, or vaseline variously medicated, aggravates instead of helping. All local treatment, except perhaps scarification, should be avoided. This is especially true of the acute cases. In chronic cases I should regard it good practice to correct nasal abnormality. All efforts should be addressed to correcting the depraved condition of the alimentary canal. Intelligent dietetics, hydrotherapy, well-ordained physical exercise, massage, nerve rest, and the avoidance of drugs, form the basis of treatment.

THE EARLY TREATMENT OF CARCINOMA UTERI.

By HOWARD A. KELLY, M.D.,

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THE large number of hopeless cancer cases constantly applying to me for relief have induced me for the past three years to adopt certain stringent rules with regard to my own patients, which I have taught for the same period in my lectures at the Johns Hopkins Hospital.

The end in view is twofold—first, by treating cervicæ liable to become cancerous, and thus prevent the formation of this neoplasm, and, secondly, to detect cancer of the cervix at a sufficiently early date to successfully eradicate the disease.

1. It is the duty of the obstetrician to see each patient at his office from two to three months after her confinement, and there to examine and make a careful record of the condition of the pelvic structures, stating accurately what lesions have been produced by the confinement.

2. Cervical lacerations should be carefully described, noting the position and depth of the tear and the appearance of the lips. Lacerations require no treatment when the lips are thin, uninfiltated, and lie together. Thick, infiltrated, and everted lips associated with cervical catarrh call for depletory treatment followed by repair of the laceration.

3. Every woman who has passed thirty-five years of age and has borne a child should have this examination made without delay by a competent physician, and if the cervical lips do not appear perfectly sound she should be kept under observation and examined at intervals of from six to eight months.

4. Every woman over thirty-five, with a cervical tear, should be examined at least once a year for ten years, or longer, if the appearance of the lacerated area is not perfectly healthy.

5. These rules apply with special force to patients whose family history shows a marked inclination to cancerous diseases.

If these rules are conscientiously observed there is not a shadow of doubt but that thousands of lives would be saved yearly in this country alone by timely interference with a disease so markedly local and accessible in its origin.

I feel that while we are searching for a cure for cancer, the line of progress in the immediate future for the gynecologist is clearly in the direction of prophylaxis and anticipation, either preventing or discovering the malady in its earliest stages.

A PRELIMINARY NOTE UPON THE RELATION OF THE BACTERIUM COMMUNE COLI TO APPENDICITIS.

By GEORGE RYERSON FOWLER, M.D.,
BROOKLYN.

In an article by Dr. Morris, in the October number of the *Annals of Surgery*, the following paragraph occurs (page 369):

"The phenomena of infectious appendicitis vary according to the predominating species of bacteria in any given case, but the *pyogenic streptococci* and *staphylococci* do most of the wide infecting" (Italics my own).

The active rôle of micro-organisms in producing the phenomena of appendicitis was pointed out by Talamon, according to a statement made, by that writer in a recent publication upon the subject,* more than ten years ago. Four years ago (1889) Laruele, quoted by Talamon (page 53), declared that the *Bacterium commune coli* was the veritable agent of peritonitis by perforation. Welch,† of the Johns Hopkins University, noted the presence of this microbe in six cases of peritonitis due to perforation, and in two instances it was due to an intestinal affection in which no perforation was present.

In a paper read before the American Surgical Association, May, 1893, by Dr. Roswell Park, of Buffalo,‡ entitled The Importance to the Surgeon of Familiarity with the *Bacillus Coli Communis*, among other suppurative intra-abdominal conditions in which this bacillus was found, three instances are reported in which its presence was demonstrated in connection with appendicitis.

Of recent years the innocent character of the *Bacterium commune coli* has been doubted by many. Within the past few months there has been a disposition to attribute to this agent not a few suppurative inflammatory conditions exclusive of those occurring in organs invested with peritonæum or adjacent to the intestinal tract.* It is more than likely that a micro-organism which may take upon itself migratory powers and pathogenetic characteristics, produc-

ing inflammatory lesions at points remote from its natural habitat, would produce distinctive effects upon tissues with which it might be brought in contact from direct continuity of surface, particularly if these tissues, in the process of evolutionary changes, are deprived to a great extent of the quality of vital resistance—the only protection which living structures possess, of themselves, against the invasion and destructive effects of bacteria in general.

In view of these considerations, and the further fact that so recent an observer as Dr. Morris, in a carefully prepared article upon the subject, has failed to mention the causative relation which in all probability exists between the *Bacterium commune coli* and appendicitis, I desire to place upon record the following observations: The cases were operated upon by myself, and included eight instances of the disease taken at random in my hospital service whenever the opportunity offered for making cultures. The method of inoculation consisted of either the employment of a heat-sterilized platinum needle, or of gathering the fluid upon a piece of sterilized gauze and transferring this to a sterilized culture tube. The appendix itself was placed immediately after removal in a heat-sterilized bottle and conveyed to the Hoagland Laboratory, where one of my assistants, Dr. A. F. Bristow, made the necessary cultures and roll-tubes. Whether the micro-organism in question stands in an ætiological relation to the disease or not, the fact remains of its constant presence in all of these cases, as shown by the following summary of the results obtained:

Of the entire series of eight cases, seven gave pure cultures of the *Bacterium commune coli*.

In one case the *Bacillus pyogenes fetidis* was obtained, in addition to the *Bacterium commune coli* (examination made by Dr. E. H. Wilson, pathologist to St. Mary's Hospital).

In four cases encysted sero-fibrinous deposits (encysted intraperitoneal suppurative peritonitis) were present.

In two cases appendical abscess existed.

In one case general sero-purulent peritonitis existed.

In one case no pus or serum was found. A periappendicitis and serous parietal appendicitis existed only; the mucous membrane lining the appendix was normal. No fecal matter was found in the interior of the tube. The cultures were made from a patch of lymph on the peritoneal surface of an adjoining portion of the cæcum, to which the tip of the appendix had become adherent. This culture gave pure *Bacterium commune coli*. Attempts to procure the micro-organisms from the sections of the wall of the appendix were unsuccessful, although more than a hundred sections were made and examined by Professor Van Cott and Dr. Wilson.

A word of comment upon the last observation. The entire absence of inflammatory conditions in the mucous membrane of the organ, together with the presence of an inflammation of the peritoneal covering and wall of the organ, which was most pronounced at the point where it rested against the cæcum, suggests a migration of the bacterium through the wall of the bowel itself, the appendix becoming infected from that direction.

* *Appendicite et péritéphyllite*. Par Ch. Talamon. Paris, 1892, p. 51.

† *American Journal of the Medical Sciences*, November, 1891.

‡ *Annals of Surgery*, September, 1893, p. 293.

* Stein. Zur Kenntniss des pathogen. Werking des Colon-Bacillus beim Menschen. *Deutsche med. Wochenschrift*, No. 26, 1893.

GOLD IN THERAPY.*

By E. A. WOOD, M.D.,
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GOLD is one of the old remedies which have been crowded to the wall by the more brilliant achievements of modern pharmacy. It is safe to say that one half of the medical profession never prescribe gold; the large body of the other half use it occasionally, while a very small minority employ it constantly in the class of cases in which it is best suited.

Gold, practically, to the main body of the profession is a new remedy. From the company it has fallen in with of late, gold is open to suspicion, and whether it is a partner in the "Keeley cure" or not, many will be prejudiced against it. It would seem timely and just to drag the old drug from its dusty closet and tear it away from its bad company that we may learn what standing it really deserves in therapeutics.

What, then, is the pathological condition in which gold is especially indicated as a curative agent? Let us answer this question with as much precision as possible. If gold has a place in therapy, it must fill a special place, for it, like all other drugs, is no panacea. What is its place?

What say authorities in reply to this question? In view of its great age, it is astonishing how meager the literature. It is still more astonishing that until within a very recent period we had practically but one preparation of gold—the chloride of gold and sodium. That preparation to-day is the one given, and by it the standard of gold is rated as a curative agent. Gold is as old a remedy as mercury, and yet gold to-day is almost unplaced in therapeutics. The compounds of mercury are a legion, its history is voluminous, and its therapy accurately known and established. We know more perhaps about mercury than about any other drug; we know less of gold than of most drugs.

Authorities agree in declaring that the chloride of gold and sodium is an alterative, behaving very like mercuric chloride. No author gives gold a very wide range in therapy; no one attempts to name the exact pathological condition in which it is best indicated and most efficient; and nearly all who have written on gold in therapy, whether designedly or not, succeed in "damning it with faint praise." Syphilis is one of the diseases in which it is commended, some say in the secondary lesions, others that it is best suited in the tertiary form. The praise given to gold in syphilis is not high—certainly not so loud as that given to mercury. It is said to be aphrodisiac and emmenagogue. *Tabes dorsualis* and cirrhosis of the liver, lungs, and kidneys are said to be cured by gold. Some praise it in diseases of the glandular system, especially in disease of the glands of the stomach and intestines, as it increases the appetite and promotes secretion, digestion, and nutrition. It is said to give force to brain action, courage to the despondent, hope to the hypochondriac, and content to the melancholic. All speak of it as affecting the gums without

salivation, and that it produces an eruption of the skin and gold fever. The latter I have never seen.

That is the sum and substance of what therapeutists say of the chloride of gold and sodium. But there are three questions which are still unanswered: 1. Is the chloride of gold and sodium more efficient in the lesions named than any other drug? 2. Is gold in therapy limited to the one double salt? 3. What is the special pathological condition in which gold is most efficient as a curative agent?

Leaving out the first question for the present, I shall undertake to answer the other two as observation and experience have taught me.

My more immediate purpose is to direct your attention to some preparations of gold other than that of the chloride of gold and sodium, samples of which are before you.

The first preparation I shall notice, and the one with which I am best acquainted, through prescribing it for the past seven months in the place of the double salt, is the liquor auri et arsenii bromidi. The successful combining of gold with bromine, mercury, arsenic, and other metals is due to the indefatigable labors of Dr. W. F. Barclay, of Pittsburgh, who persevered in the face of the decree of some chemist that such compounds are impossible. There stands the liquid bromide of gold and arsenic. There stands the liquor of gold and mercuric bromide. Here are other preparations of gold combined with other metals. As there is no filtering employed in the manufacturing of these liquors, every atom of the metals must be present. The two liquors are, as you see, beautifully red and transparent, elegant as the garnet fluids in the show bottles of a druggist's window. I am not sure that it will not fade under exposure to light, but I know that after months' standing not a shadow of sediment mars its complete transparency. It is almost tasteless. The dose—ten drops—contains one thirty-second of a grain of gold and one sixteenth of a grain of bromide of arsenic. The mercuric bromide of gold contains one thirty-second of a grain each of gold and bromide of mercury to ten drops, which is the dose. Each preparation is pleasant to take, is more readily absorbed than the chloride of gold and sodium, and, in my experience, is more assimilable and active than the double salt. Of course the gold is modified and its action intensified by the combination with other metals. It is probable that gold will readily combine with all other metals used in therapeutics.

The class of diseases in which I have found gold to be peculiarly efficient, and in which it seems to be especially curative above all other drugs, is that class in which *sclerosis* is the chief factor. In naming *sclerosis* as a class, I am perhaps taking undue liberty with the nomenclature of the pathologist, since the term *sclerosis* is generally understood to mean induration of the tissues of the brain and spinal cord. Literally, it is proper to apply the term *sclerosis* to any organ or tissue in which induration is the factor. When we marshal such pathological conditions into a class, we shall find that *sclerosis* has a wider and, it seems to me, a more significant meaning than has been hitherto attached to the word and the lesions it names. It would seem as though we have reduced therapeutics to an

* Read before the Mississippi Valley Medical Association at its nineteenth annual meeting.

exact science when, instead of a name, we establish an exact pathological condition, with the remedy most efficient in removing that condition. That is the exactitude we have in gold as a special curative agent in all forms of sclerosis. Cirrhosis of the liver, interstitial nephritis, atheroma and its associate, calcareous degeneration of the arteries; the circumscribed induration following embolism or blood-clot in the brain tissue, senility and its train of decrepitudes—for what is old age but a general sclerosis?—all belong to the class I have named. Cirrhosis of the lungs, certain forms of consumption—fibroid consumption, miliary tuberculosis, and especially that form of consumption in which masses of lymph become organized in the lymphatics of the lungs as we see the process in the glands of the neck and called adenitis. Without naming all the lesions that may be classified under the head sclerosis, I will state as my belief, founded on an experience of twenty years, that gold is far more efficient in them all than any other drug I know of. I desire to say in addition that the liquid preparations of gold as combined with bromine, arsenic, iodine, and mercury are as much superior to the chloride of gold and sodium as quinine is superior to the crude Peruvian bark.

In addition to its efficiency in the scleroses it would seem as though gold, at least the liquor auri et arsenii bromidi, exercises a power as a tonic and nutrient to the nervous system, especially to the nervous systems of those who have advanced to fifty and beyond. May it not be that in cases of neurotic diseases of the aged there is a sclerosis? Certain it is that gold is not so efficacious in functional nervous ailments of the young. It is just to remember, too, that the association of gold with bromine and arsenic may have very much to do with its curative powers. But for all that gold and its preparations is the medicine for those in middle life and in old age. It stimulates the brain, incites a flow of spirits, gives sleep to the sleepless, courage to the despondent, and intensifies sexual desire and power. Gold should maintain physical vigor and prolong life even if taken when there is no disease except the inherited tendency to decay before reaching the Biblical limit of life.

In presenting a few cases taken from my clinical day-book I beg leave to remark that I appreciate incredulity, and with that thought before me I am guarded in my statements, feeling that a modest conservatism will be tolerated by you, whereas you would smile at and ignore the vivid praises of the enthusiast.

E. H., aged fifty-seven years, roofer; temperate, with good heredity and void of syphilis or any cachexia. Had complained of what he was told was rheumatism of the knee joints since February, 1892. Visits to the seashore and Mount Clements, together with medication by various physicians, did not arrest the disease, which grew steadily worse. On the 14th of May last I saw him with Dr. Barclay. His knees were swollen, stiff, and painful, preventing rest or sleep. He preferred to have his legs amputated rather than endure his agony. We diagnosed the case as arthritis deformans, and put him on the liquor auri et arsenii bromidi. In six weeks' time he pronounced himself cured, the pain and stiffness were gone, and the swelling was very much reduced. He still remains well up to date.

R. E. M., aged forty-five years. Heredity good. Having treated him for a year for locomotor ataxia by suspension, ergot, and other usual remedies, I placed him on the liquor of gold last July. He sleeps better, his appetite is improved, he is not so despondent, the girdle pain and the pain in his feet are very much abated, but there is no improvement in the coordination. He is still taking the gold.

C. T., periodical dram drinker. Took the gold two weeks, at the end of which time there were ulcers in the mouth and the teeth in the lower jaw were loosened.

M. Mc., aged fifty-two years. Heredity good. Very fond of women and noted for his sexual powers and endurance. He had suffered for eighteen months with neuralgia of the left trifacial nerve. He had tried various forms of treatment, among others that of having the sound teeth extracted from the left lower jaw, but without relief. Speaking was painful, mastication impossible, and swallowing of liquids agonizing. He was haggard with pain and loss of sleep. In spite of his protest, I treated him for syphilis by giving him mercury and the iodide of potassium. He improved very considerably, but the pain persisted, though to a slight degree, and grew worse on stopping the mercury. In June last I put him on the mercuric bromide of gold, with rapid improvement, and he pronounces himself cured. He still takes the gold occasionally.

I have administered the bromide of gold and mercury in two cases of iritis with evident advantage.

Two cases of fibroid consumption, with cavities, both the result of neglected pneumonitis, are astonishingly improving under the use of the bromide of gold and arsenic internally and the inhalations of papoid glycerole by the atomizer.

One case of pneumokoniosis, "grinders' consumption," had resisted treatment for four years, during which the patient lost in weight, while cough and expectoration increased. In July I put him on the bromide of gold and arsenic with papoid inhalations. September 27th, coughs a little on rising in the morning; expectoration no longer black. Gained fifteen pounds in weight.

One case of miliary tuberculosis, in which the pulse was 130, temperature 101° F., respiration 30, is rapidly improving on the gold.

Two cases of diabetes have improved under the use of the gold, one of them so much so that he was accepted last August as a good risk by one of the foremost life insurance companies. In both cases I gave codeine at the beginning of the treatment, but left it off and continued with the gold.

A case of adenitis, with enormous enlargement of the left side of the neck, is being rapidly cured by the bromide of gold and arsenic.

Does gold ever fail to cure? Yes, if given in cases unsuited for it. But in the scleroses, while it may fail, it will accomplish more cures than any other remedy.

The following cases in which the liquor auri et arsenii bromidi was used are contributed by Dr. W. F. Barclay, of Pittsburgh:

J. C. K., aged seven years and a half, family history good. Had convulsions for over five years, sometimes as many as five epileptic convulsions in a day; could not talk; had an idiotic expression; the saliva continually dribbled from his mouth; had an inordinate appetite, and constipation of the bowels. This

case was the first one in which I prescribed liquor auri et arsenii bromidi, five drops, three times a day, in water. About February 15th I began the treatment, and about March 1st he had a convulsion that lasted for about twelve hours, since which time he has had no convulsions. Continued the use of the medicine right along with no alteration, except to increase the dose to ten drops. Saw him on September 28th and find that he seemed entirely well; his mind is clear, his speech is natural, the saliva does not dribble from his mouth, his appetite is normal, and his bowels are regular. His aunt informs me that his memory is good and that he learns rapidly.

Miss S., aged forty-one years, family history good. Had neuritis with partial hemiplegia first about five years ago; has been better and worse during the time since until June 1st, when she was referred to my care for treatment by Dr. F. Le Moyné. She was unable to walk and suffered considerable pain along the spine and in her right arm and leg. Prescribed liquor auri et arsenii bromidi, ten drops, three times a day, in water. She has continued the treatment until the present time, and reports herself entirely well.

Mrs. S., aged forty-two years, family history good, menstruates regularly, has rheumatoid arthritis, and the joints of the fingers, wrists, elbows, and knees are ankylosed. Was first affected fifteen years ago, and has been unable to walk for over four years. Saw her for the first time on 21st of July; prescribed liquor auri et arsenii bromidi, ten drops, three times a day, in water. She has been under treatment now for over two months, and the ankylosis is entirely removed from the joints, and the bony deposits have been almost entirely removed. She is still under treatment, and is making a rapid recovery.

Mr. W. B. G., aged twenty-eight years, family history good. Was injured over two years ago by being caught in an elevator. Had fracture of two ribs on the left side, with slight pulmonary hæmorrhage. Has suffered more or less ever since. Six months ago had pain in the anterior and posterior parts of the chest, with difficulty in breathing. For over two years, when he exerted himself, had sharp, lancinating pains in his lungs, could not sleep at night, and had night-sweats with chills. Saw him on July 21st. Temperature, 108°; pulsations per minute, 130; skin dry and hot; respirations, 42 a minute. Had dry, subcrepitant râles over both lungs; dullness over both lungs. Prescribed liquor auri et arsenii bromidi, ten drops daily, in water.

September 27th.—Temperature, 99°; pulsation, 96; respirations, 24; still coughs some at night. He has gained ten pounds, and everything indicates that he is making a rapid recovery. Directed to continue treatment.

Mr. B., aged thirty-six years, had sciatica (left side), was quite lame, and suffered intense pain over sciatic notch, down the limb, over entire region of sciatic nerve. Prescribed liquor auri et arsenii bromidi, ten drops, three times a day, in water. After the third day he began to improve, and in three weeks had made a complete recovery.

The Public Health Section of the New York Academy of Medicine.—The first meeting of the season was held on Tuesday evening, the 10th inst., under the chairmanship of Dr. S. T. Armstrong. Mr. Ernest Hart, of London, read a forcibly written paper in which he elaborated the English idea of the worthlessness of quarantine, especially in the case of cholera, but admitted that in the United States there might be circumstances existing that justified a quarantine system.

Change of Address.—Dr. H. D. White, from Nutley, N. J., to Rutherford, N. J.

AN INQUIRY INTO THE ÆTIOLOGY OF MENTAL DISTURBANCES FOLLOWING OPERATIONS UPON THE FEMALE PELVIC ORGANS.*

By GEORGE H. ROHÉ, M.D.,

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THE occurrence of insanity as a sequel of surgical operations has long been known. The more transitory forms of mental aberration, termed traumatic or nervous delirium, are recognized by all surgeons, although probably less frequently seen since the general adoption of aseptic methods in surgery. Within the past few years especial attention has been drawn to insanity following operations upon the female generative organs, and by some this occasional occurrence of mental disturbance has been held to be a contraindication to the performance of such operations. It has been maintained that insanity follows removal of the uterine appendages with especial frequency, and that therefore the possibility of this unfortunate complication should demand our particular attention before subjecting a patient to operation.

Struck by the frequent more or less positive references in the recent literature to insanity following gynæcological operations, and the rarity of personal contact with this condition, I ventured, a little over a year ago, to send a circular letter to the medical officers of all the institutions for the insane in the United States and British America requesting information upon this subject.

Replies to this circular were received from nearly all those addressed, and, to my surprise, returns of only twenty-five such cases occurring in the last ten years were obtained. While it is probable that some cases were missed through defective records in the institutions, it appears that some were reported as having become insane through the operation who were insane before it was done. Indeed, the histories furnished me show that in some cases the operation was done with a view of a beneficial effect upon insanity already existing.

It is probable that the cases reported to me represent a large proportion of those in whom the mental aberration was of a persistent character, and included few, if any, of those transitory forms more aptly characterized as delirium rather than true insanity.

The further history of these twenty-five patients as reported to me showed that nine were discharged from the hospitals—seven recovered and two improved. Four died and twelve remained under treatment. The discharges numbered thirty-six per cent., the deaths sixteen per cent., and the patients remaining in hospitals—some better, some stationary, some worse—forty-eight per cent. I shall return to the consideration of these figures presently.

The details of a number of the cases of mental disturbance following gynæcological operations leave much to be desired on the score of fullness and accuracy. In perhaps the majority of instances the reporter considers it sufficient

* Read before the Section in Gynecology and Abdominal Surgery of the First Pan-American Medical Congress.

to state that "insanity" followed the operation. However, enough is known to warrant the conclusion that several forms of mental disturbance, agreeing in the main with certain prominent clinical varieties of insanity, are met with as such post-operative sequels, but there is no special and distinctive form of post-operative psychosis.

There can be little doubt that in persons with emotional instability the shock of a grave operation may produce transitory delirium, or even more persistent mental aberration. The frequency of the so-called "transitory mania" at the moment of the completion of the second stage of labor is evidence that intense pain, combined with high nervous tension, is capable of producing it. The delirium attending severe injuries—"traumatic delirium"—may also in most cases perhaps be ranged with the cases of mental aberration from shock. Those cases of post-operative delirium or psychosis following immediately after the operation may, I think, be classed in this category. That other factors may concur in the production of this form of psychosis—*e. g.*, anxiety, worry, and the like—is probable. Ahlfeld reports a case of violent mania following the introduction of a speculum, and Kiernan one consequent on the passage of a catheter in a man. In a small number of the reported cases no other essential factor than the shock and anxiety can be traced. From this form the patient usually recovers.

A second class of post-operative insanity would appear to be due to the absorption of poisonous agents used before, during, or after the operation. It is now generally accepted that the acute mental disturbances, mostly hallucinatory in character, following operations upon the eye are due to the use of atropine and similar drugs. It is not improbable that some of the post-febrile psychoses are attributable to a similar cause. I have recently had under my care in the Maryland Hospital for the Insane a case of acute hallucinatory mania following rheumatism, in which I believed the beginning of the attack could be traced to heavy dosing with salicylates. The withdrawal of the medicine was followed by rapid recovery.

These cases of drug poisoning with pronounced symptoms of mental disturbance are probably not so very rare as sequelæ of grave surgical operations, particularly where extensive use is made of chemical antiseptics during the operation or in the after-treatment. The excessive use of opium, quinine, and other anodynes and antipyretics may with good reason be charged with some of the cases of post-operative insanity. I am of opinion that the rare cases of mental disturbance following the administration of anesthetics may properly be ranged under the same caption. One reason for this view is that in the large majority of these cases the symptoms are transitory and recovery promptly follows under appropriate treatment, the chief feature of which must be the withdrawal and elimination of the toxic agent.

A third class of cases of post-operative insanity I believe to be due to the absorption of septic materials from the wound or surface exposed during the operation. A study of reported cases shows that the insanity in most instances develops several days after the operation and is

usually of the clinical variety termed by some writers "acute confusional insanity." The prominent symptoms are insomnia, restlessness, emotional instability, sometimes sudden, violent outbreaks, followed by incoherence, variable hallucinations, especially of vision, and sometimes delusions of grandeur or persecution. In most cases there are symptoms of fever, and usually marked implication of the physical powers. The pulse is rapid and weak, the temperature elevated, the tongue dry and red, and there is, usually, refusal of food. Exhaustion of mind and body rapidly intervenes, and the patient sinks into a state of muttering delirium, coupled with great bodily weakness. The name "typhomania" is a fairly accurate designation for many of these cases. Essentially the condition is an exhaustion-psychosis due primarily to septic intoxication or septic infection. That the affection termed by writers "acute delirium," "delirium grave," etc., is generally a septic psychosis, as maintained by J. H. Lloyd, is extremely probable. This view will explain a considerable proportion of cases of post-operative insanity following upon gynecological operations. Professor Le Dentu has reported a number of cases coming under his personal observation. There were no essential differences between the acute cases following gynecological and those following other operations. This writer collected sixty-eight cases of post-operative insanity—thirty-eight following operations upon the female sexual organs and thirty developing subsequent to general operations.* Generally, he says, the mental disturbance begins from the second to the fifth day, although in some cases not until the twentieth or even later. He discusses the possible causes of post-operative insanity but does not offer a solution of the problem. Dr. Bantock, in referring to a case of "hysterical mania" following four or five days after a hysterectomy, says there was "considerable tumefaction of the mammae to account for the disturbance."

Excluding the cases due to shock, nervous strain, exhaustion, and drug intoxication, which generally appear within the first twenty-four hours, it is probable that the majority if not all the cases of post-operative insanity coming on within the first week are septic in origin. Puerperal insanity is coming to be regarded as essentially a septic psychosis, and in this large and well-studied class of mental disturbances we have the closest analogy to most cases of post-operative insanity. It is possible that some of these acute cases following removal of the uterus or appendages are due to the sudden induction of the menopause, for so acute an observer as Krafft-Ebing considers the onset of the climacteric as a cause of acute delirium. I am inclined to the opinion, however, that the fourth class of cases—namely, those coming on several weeks or months after the operation, and which are usually more persistent—may be attributed especially to this ætiological factor.

These may be regarded as essentially cases of climacteric insanity. The clinical form in which the psychosis

* Out of 185 cases collected by Sears (*Boston Medical and Surgical Journal*, June 29, 1893), only 43, or 23.2 per cent., followed operations upon the uterus or ovaries. Insanity follows operations on the eye more frequently than upon the female sexual organs.

manifests itself is the same as occurs in the majority of cases of climacteric insanity—namely, melancholia. It pursues a similar clinical course, and recovery follows in about the same percentage of cases.

In about four per cent. of all women admitted to insane hospitals the insanity is attributed to the menopause. Out of three thousand and forty-seven women admitted to the State hospitals in New York during three years, six hundred and sixty-six were between forty and fifty years of age. If we compare the total number of cases attributed to the climacteric to the total admissions at the climacteric age, we find the proportion of climacteric insanity to all insanity in women at the same age as one to five. Climacteric insanity, then, is not so very rare, and it should not surprise us to find a considerable number of cases among women in whom the menopause has been artificially induced. Indeed, when we consider the frequency of mental symptoms in the normal menopause, extended as it is usually over a period of several years, one is forced to expect marked psychical changes in the menopause induced by operation, where all the changes are sudden, violent, and abnormal.

Kisch states expressly that psychical disturbances at the climacteric period are more likely to occur in women of excitable nervous system and in women in whom the menopause appeared suddenly.

The records of cases of insanity following operations upon the female sexual organs are neither sufficiently large nor sufficiently exact to enable us to draw definite conclusions as to their actual causation. I believe, however, it would facilitate the study of the cases if they were more fully reported, and if some attempt were made to classify them as in this paper. The surgeon or gynecologist, in the majority of instances, simply reports that in a certain number of cases insanity—or perhaps he differentiates into mania and melancholia—followed his operations. The time of beginning of attack, the clinical features, the duration, and termination are generally omitted as unessential points. I am strongly inclined to the view that, in the great majority of cases of more or less persistent insanity following an operation upon the female sexual organs—comprising removal of the ovaries or uterus—the cause of the insanity is the induced climacteric, and that in most of these women the insanity would have been developed during the menopause, whether occurring normally or artificially induced. As a basis of this view, I call attention to the comparatively small number of cases of persistent insanity following removal of the ovaries and tubes, the clinical form of insanity present in the greater number, and, finally, the percentage of mental recovery, which closely approximates the recovery rates from ordinary climacteric insanity.

Answers to Correspondents:

No. 412.—We think not.

No. 413.—This correspondent does not give us his name and address; consequently, we can not guide him to our reply in the usual way. Painful distention of the large intestine could undoubtedly be caused by the procedure described, and it is quite likely that the pain would be accompanied with nausea if not vomiting, but we do not think that the vomiting, if any occurred, would be caused mechanically by the inflation.

IS IT SAFE TO ANÆSTHETIZE PATIENTS SUFFERING FROM AORTIC INSUFFICIENCY?

WITH REPORTS OF TWO CASES.

By R. E. GIFFEN, M. D.,

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It is a maxim laid down by our predecessors, taught from generation to generation: "Do not give an anæsthetic when your patient is suffering from valvular heart disease." From that maxim I beg leave to dissent and say that in the majority of cases it is reasonably safe to give an anæsthetic.

What happens to the heart in aortic insufficiency? The aortic insufficiency is followed by compensating hypertrophy of the left ventricle. When this hypertrophy begets dilatation, then follows, sooner or later, (a) peripheral failure of the circulation (œdema), or (b) central failure of the circulation, and sometimes both. We now ask ourselves, What is the limit of this compensated hypertrophy? At what point can we safely give an anæsthetic? The muscular impulse (intensity) and the rapidity (time) determine arterial pressure. Arterial pressure and rhythm make up the heart's action. Arterial pressure must not overcome rhythm. By physical diagnosis we determine hypertrophy: (a) by palpation at the apex; (b) by auscultation, rapidity, and rhythm.

Now, so long as that rapidity does not disturb the rhythm—viz., first sound, second sound, and pause—within reasonable physiological limits, or, in other words, the arterial pressure, composed of the time (rapidity) and intensity (muscular impulse), does not overcome rhythm, then, to my mind, we are safe in administering an anæsthetic.

The effect of ether as the patient becomes narcotized is to lower the arterial pressure to such an extent that the rhythm and arterial pressure are more than ever in accord. Take the reports of cases of death under an anæsthetic and they will, in the majority of instances, read like this: "On examining the heart before administering the anæsthetic, it was found in a normal condition; no valvular disease could be determined." Now, if in these cases more attention had been paid to the rhythm of the heart and the arterial pressure, no doubt fewer cases would need be reported.

The following are two cases which came under my care, both of whom suffered from aortic insufficiency, together with their other ills calling for surgical interference.

CASE I.—Boy, eleven years of age, was admitted to St. Elizabeth Hospital suffering from necrosis of the left tibia of tubercular origin. This lad had an aortic insufficiency, but the rhythm and arterial pressure were in perfect accord. I placed him under ether, Dr. Britt administering the anæsthetic. He was under the effect of it for an hour and thirty minutes, as I had to remove the entire shaft of the bone. At first the arterial pressure was increased, but by the time he became completely narcotized it had decreased until it was in perfect accord with the rhythm of the heart. His recovery was uninterrupted and the wound healed perfectly.

CASE II.—Mrs. R. C., aged forty-two years, came to me suffering from a cystic tumor of the right ovary and small

fibroid of the uterus with profuse hæmorrhages until she was very anæmic. She also had an aortic insufficiency from which she had suffered for over twenty years. The pain and hæmorrhage caused her so much suffering that, to use her own words, she said: "Do something for me, for I am dying by inches; I can not endure another attack of bleeding, and this pain in my side is eating my life out. Yet I am told I can not take an anæsthetic on account of my heart disease. I am willing to stand it without taking anything if you will only give me the chance of being relieved by an operation."

Now, I ask, what would you do under the circumstances? I had my friend Dr. Tyndale examine the heart, and he agreed with me that the intensity of the impulse plus the rapidity of the heart's action still permitted the rhythm of the heart to be distinguished—viz., the sounds did not merge into one another. I waited no longer, but made up my mind to operate, and after giving the patient ten days' preparatory treatment by rest in bed and nourishing diet, I operated, assisted by Dr. Tyndale and Dr. Britt, Dr. Britt administering the anæsthetic. I removed the ovarian cyst, also the ovary and tube of the left side to check the hæmorrhage from a small fibroid of the uterus. She was under the anæsthetic, from the beginning to the finishing of the operation, forty-five minutes. The effect of the ether was the same as in the first case. At first the arterial pressure was increased, but as narcosis deepened the rhythm and arterial pressure harmonized perfectly. Her recovery was uninterrupted, and now, three months after the operation, she writes me as follows: "I am free from pain in my abdomen, but I have got my old heart yet, and as it thumps and pumps, sending out a pain here and there, it seems to say, 'The surgeon's knife cured your other pains, but I defy them all.'"

With the experience I have given above, I feel justified in saying, In the future let us give more attention to rhythm of the heart and arterial pressure than has been done heretofore.

Visiting Physicians to the Hospitals for Infectious Diseases.—At a recent meeting of the Board of Health of the Health Department it was resolved that the board should appoint six attending physicians to the hospitals of that department, each to serve six months of the year, three being on duty at one time at each hospital. These attending physicians, when on duty, shall be required to visit the hospitals on at least two days of each week. Each physician when on duty may visit the hospitals daily. The attending physicians are to be required to conform on all occasions to such regulations as may be prescribed by the board of health, such as those relating to the wearing of gowns within the wards, disinfecting the hands on leaving the wards, the hours for visiting, the wards to be visited, etc. The board is to appoint one interne to serve in each hospital of the department for the term of three months, these internes to be chosen by the board from among recent graduates from approved medical colleges after an examination by the attending physicians, and their successors are to be appointed in like manner. The duties of the internes are to be such as usually pertain to the office of senior assistants in other hospitals, and they are to be at all times subject to the orders of the resident physician. The attending physicians and the internes are to serve without pay, except that the latter may reside within the hospitals if the resources of the hospitals permit of it.

The Medical Society of the County of Albany, N. Y.—The special order for the semi-annual meeting, on Tuesday, the 10th inst., was an address by the vice-president, Dr. Howard Van Rensselaer.

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MOVABLE KIDNEY.

The *Lancet* for June 17th reports the Cavendish Lecture for 1893, by Dr. Morris, on the subject of movable kidney and its treatment by nephrorrhaphy. The lecturer would preserve the terms "misplaced kidney" and "displaced kidney" to denote the condition in which the kidney is permanently out of its normal position, and thinks that the word "movable" is alone sufficient to embrace all cases in which the kidney is so loosely attached as to shift from its normal place, but can be made to return to that place by some movement of the body or of the abdominal organs, or by the surgeon's hand. Dr. Morris justifies this comparatively simple classification by showing, first, that even the most motile of kidneys—those, for example, that float quite up to the anterior abdominal wall—may cause very little pain or other subjective symptoms, and have no mesonephron; secondly, that some of the very painful cases and those marked by frequent recurrences—those most likely to be mistaken for renal calculus—are hardly to be detected by clinical examination. It is only recently, or since surgical exploration of the kidney has come into vogue, that this form of dislocation has been shown to exist as a cause of very severe symptoms. These explorations have been undertaken, in not a few instances, in the belief that renal calculus would be found; but the movable kidney has been found and has been treated by a successful nephrorrhaphy. Errors of diagnosis have been made so often, in respect to movable abdominal tumors of various kinds, that doubts have been entertained as to movable kidney. Mr. Lawson Tait is quoted as affirming that some time ago he had knowledge of thirteen supposed cases of this infection, of which seven had proved to be gall-bladder cases—cases in which that viscus was enlarged by dropsy or by calculus or by both.

The relief afforded to those patients in whose cases the symptoms have been intense by the operation of merely stitching the kidney to the parietes of the loin has been incapable of being forgotten by any surgeon who has been permitted to follow up their histories. The most gratifying curative results of nephrorrhaphy have been noted when the sutures have been made to pass into the renal substance; the loose fibro-cellular capsule is shortened and stitched also to the muscle and fascia of the loin. Tuffier remarked, at the Surgical Congress in Paris, that in every case of nephrorrhaphy under his notice, provided the operation had been clearly indicated, it had accomplished a perfect result.

It can not be maintained that the life of the patient is directly threatened by motility of the kidney, but it is indi-

rectly in serious danger by reason of the changes wrought upon that organ by interference with the patency of its ureter and by compression of its vessels and nerves, possibly ending in suppurative or dropsical changes. These remoter results, along with the possibly prolonged period of ill-health and distress, may be pointed out whenever the surgeon is called upon to give advice as to an operation for either movable kidney or renal calculus.

It may be added that Dr. Edebohls, of New York, has recently improved the technique of nephrorrhaphy by the use of a cylindrical air cushion on which the patient's abdomen rests; the patient lies on the operating table face downward, instead of being in the Sims posture, as preferred by the majority of surgeons. This air cushion is eight inches wide and a foot long. It is inflated by means of a valve and key similar to that used with the football. The force of gravity and the resistance of the air cushion combine to throw the kidney well up to the line of the lumbar incision, so that the surgeon has full access to the entire organ and can palpate it, split its capsule, and otherwise prepare it for the suturing in a thorough manner.

MINOR PARAGRAPHS.

THE FULL CORRECTION OF MYOPIA.

DR. H. L. JENCKS, of Galena, Illinois, writes to us as follows: Dr. Edward Jackson, in the September number of *The American Journal of the Medical Sciences*, says: "It is, however, certain that on the part of a considerable number of ophthalmologists there is a disposition to avoid the giving of a full correction for myopia, or a timidity about it that keeps them from giving such lenses for constant use, or induces the advice to use the glasses as little as possible. This timidity is abundantly evidenced in ophthalmic literature and in the practice of colleagues, and was formerly largely shared by myself. It is to aid in showing that such timidity is mistaken and harmful that I bring forward my clinical experience in this matter. This expression of opinion as to the value of full correction is essentially the same as that advocated by Hartridge in his recent work *Refraction of the Eye*, page 150, where he says: 'My own opinion is that every case requires treating on its own merits; very many myopes wear their full correction constantly with comfort and, if not with benefit to the eye, most certainly without injury, while other myopes will occasionally be found who suffer from asthenopia when using their full correction for near vision.' It would thus seem from these two eminent authorities that in suitable cases the full correcting glasses should be constantly worn. In practice, however, many exceptions will have to be made to this rule."

MIKA'S OPERATION.

THE *Lyon médical* for September 24th contains an excerpt from *La Médecine moderne* on a bizarre surgical operation that is practiced by the aboriginal Australians. It consists in opening the inferior portion of the urethral canal near the scrotum. The wound is kept open until cicatrization produces a fistula. The operation is performed for the purpose of permitting of coitus and insuring relative sterility. In one Australian tribe M. Mikuko-Maclaya has counted three hundred men so operated on, while only three or four had the urethra intact. These

latter males were the most magnificent specimens of the race. M. Gazorowski recalls the fact that the aborigines of Santo Domingo practiced a similar operation on horses in the eighteenth century, so as to preserve all their vigor without the power of procreation. Sterility so produced is evidently only relative, for sperm deposited at the entrance of the vagina sometimes suffices to fecundate.

FRENCH PUNISHMENT FOR SANITARY DELINQUENCY.

IN France drastic measures are imposed on civil officials that are remiss in attending to the sanitation of their communities. The *Medical Week* for September 29th states that the mayor of a provincial town was recently suspended from his functions because no sanitary measures had been adopted at the outbreak of an epidemic to prevent the propagation of the disease, which was allowed to spread among the population for more than ten days before an attempt was made by the municipal authorities to comply with the advice of the medical man in charge and with the instructions of the government, by taking the necessary steps to stay the epidemic's progress; also because of the delay in the adoption of the precautionary measures recommended by the physicians sent by the government.

SPECIAL CARE FOR TUBERCULOUS PATIENTS.

THE *Medical Week* for September 29th states that, by a recent decision of the Hungarian Minister of Commerce, special care for phthical patients will be attached to all passenger trains between Buda-Pesth and Gleichenberg during the season at the latter place.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 10, 1893:

DISEASES.	Week ending Oct. 8.		Week ending Oct. 10.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	16	8	59	11
Scarlet fever.....	36	0	58	3
Cerebro-spinal meningitis....	1	1	3	3
Measles.....	32	5	53	2
Diphtheria.....	118	27	112	34
Small-pox.....	7	11	13	2

The Tri-State Medical Society.—A partial list of papers to be read at the fifth annual meeting, to be held in Chattanooga, Tennessee, on Tuesday, Wednesday, and Thursday of next week, under the presidency of Dr. Richard Douglas, of Nashville, has been issued, and includes the following titles:

Membranous Croup, with a Report of Cases treated with Tracheotomy, by Dr. R. M. Harbin, of Calhoun, Ga.; Intubation, by Dr. Max Thorne, of Cincinnati; The Treatment of Stone in the Cystic Duct, by Dr. W. E. B. Davis, of Birmingham, Ala.; Cholecystotomy, by Dr. Paul F. Eve, of Nashville; The Symptoms and Pathology of Fractures about the Elbow, by Dr. J. B. Murfree, of Murfreesboro, Tenn.; The Treatment and Prognosis of Fractures about the Elbow, by Dr. Willis F. Westmoreland, of Atlanta; The Action of the Galvanic Current on the Uterine Tissue, by Dr. H. Berlin, of Chattanooga; The Pathology of the Sequelæ of Purulent Inflammation of the Middle Ear, by Dr. T. Hilliard Wood, of Nashville; The Treatment of the Sequelæ of Purulent Inflammation of the Middle

Ear, by Dr. G. C. Sayage, of Nashville; The Significance of Albumin in the Urine in Pregnancy, by Dr. E. T. Camp, of Gadsden, Ala.; Serous or Watery Discharges during Gestation; their Source and Significance, by Dr. J. R. Rathmell, of Chattanooga; Tuberculosis on the Cumberland Mountains, by Dr. L. P. Barbour, of Tracy City, Tenn.; The Symptoms and Treatment of Gastritis, by Dr. G. T. Prince, of Whiteside, Tenn.; The Treatment of Varicocele, by Dr. J. W. Handly, of Nashville; The Treatment of Pyrexia, by Dr. J. A. Witherspoon, of Columbia, Tenn.; Recent Observation of Croupous Pneumonia, with Special Reference to Prophylaxis and Treatment, by Dr. R. M. Cunningham, of Birmingham, Ala.; Nasopharyngeal Adenoids, by Dr. E. L. Jones, of Chattanooga; The Ætiology, Pathology, and Prevention of Ophthalmia Neonatorum, by Dr. L. B. Graddy, of Nashville; The Treatment of Ophthalmia Neonatorum, by Dr. B. F. Travis, of Chattanooga; The Treatment of Puerperal Mastitis, by Dr. J. W. Russey, of Chattanooga; Disease of the Female Bladder, by Dr. J. C. Le Grand, of Anniston, Ala.; The Treatment of Psoriasis at Hot Springs, Ark., with Report of Cases, by Dr. J. Cabell Minor, of Hot Springs, Ark.; The Treatment of the Omentum in Hernia Operations, by Dr. G. A. Baxter, of Chattanooga; Report of the Psychical Science Congress, Chicago, August, 1893, by Dr. John E. Purdon, of Cullman, Ala.; The Elastic Dressing applied to Incomplete Ankylosis of the Knee, by Dr. C. W. Barrier, of Columbus, Ga.; Medical Ethics, by Dr. J. B. Cowan, of Tullahoma, Tenn.; Tubercular Peritonitis, by Dr. T. J. Crofford, of Memphis; Movable Kidney, by Dr. J. B. S. Holmes, of Rome, Ga.; The Pathology and Treatment of Gout, by Dr. W. C. Townes, of Chattanooga; and the president's address on The Responsibilities of the Abdominal Surgeon.

The late Dr. William B. Towles.—The University of Virginia has issued the following memorial:

"William B. Towles, late professor of anatomy and materia medica in the University of Virginia, was born March 7, 1847, at Columbia, Fluvanna County, Va.; entered this university as a student of medicine, October 1, 1867; and was graduated with the degree of doctor of medicine in June, 1869. On October 1, 1872, he returned to the service of the university as demonstrator of anatomy, and on the death of the revered and lamented Dr. John Staige Davis in 1885 was appointed his successor. He died September 15, 1893, upon the opening day of the seventieth session of the university, after an illness of a few hours. His one and twenty years of service form an epoch in the teaching of anatomy in this university and in America. The accuracy and abundance of his knowledge, the ardor and luminousness of his exposition, his skill in selecting and his felicity in expressing the salient truths of his science, conquered the confidence of his students, roused their interest and attention, and powerfully impressed their memories. In his intercourse with both colleagues and pupils he was frank, bold, and direct. Loyal to his friends and generous to the verge of profusion, indulgent to the frailties of youth and inexperience, but governed always by the highest sentiment of honor, he attracted the love of his pupils and the regard of his equals, and maintained from all the respect due to his robust intelligence, his manly nature, and his warm heart. His friends and colleagues in the faculty of the University of Virginia do therefore resolve:

"1. That they mourn the death of their late associate both as a personal bereavement and a public loss, and desire hereby to put on record their sense of his unsurpassed powers as a teacher and his noble qualities of mind and heart.

"2. That they extend to his afflicted family their profound sympathy in the dispensation of Providence which has taken

from them brother, husband, and father, and invoke for them those celestial consolations which alone are able to alleviate their grief.

"3. That these resolutions be spread upon the minutes, and that the chairman of the faculty be requested to transmit a copy to the family, and to cause them to be published in the Richmond and Charlottesville papers."

Army Intelligence.—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 24 to October 7, 1893:

By direction of the Secretary of War, leave of absence for four months, on surgeon's certificate of disability, is granted TOWN, FRANCIS L., Lieutenant Colonel and Deputy Surgeon General.

CROSBY, WILLIAM D., Captain and Assistant Surgeon, is, by direction of the Secretary of War, granted leave of absence for three months.

WOODHULL, ALFRED A., and GIRAUD, ALFRED C., Majors and Surgeons, are detailed as delegates to represent the Medical Department of the Army at the annual meeting of the American Public Health Association, to be held at Chicago, Ill., from the 9th to the 14th of October, 1893.

Society Meetings for the Coming Week:

MONDAY, October 16th: New York County Medical Association; New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, October 17th: Tri-State Medical Society (first day—Chattanooga); New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburg, N. Y., Medical Association; Medical Societies of the Counties of Kings, St. Lawrence (semi-annual), and Westchester (White Plains), N. Y.; Hunterdon, N. J., County Medical Society (Flemington); Baltimore Academy of Medicine.

WEDNESDAY, October 18th: Tri-State Medical Society (second day); Northwestern Medical and Surgical Society of New York (private); Harlem Medical Association of the City of New York; Medico-legal Society, New York; New York Academy of Medicine (Section in Public Health and Hygiene); New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

THURSDAY, October 19th: Tri-State Medical Society (third day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, October 20th: New York Academy of Medicine (Section in Orthopaedic Surgery); Baltimore Clinical Society; Chicago Gynaecological Society.

SATURDAY, October 21st: Clinical Society of the New York Post-graduate Medical School and Hospital.

Letters to the Editor.

A DISTINGUISHED ENGLISH VISITOR ON THE AMERICAN MEDICAL PROFESSION.

NEW YORK, October 12, 1893.

To the Editor of the New York Medical Journal:

SIR: Dr. Hammond's furious philippic is an incident which would be unworthy of notice but for the hospitality accorded

to it in your columns. I can not allow it to obscure even as a dirt spot upon the object-glass my retrospection of the three long and happy months passed in the United States.

I have enjoyed since June the pleasure of a series of friendly and courteous receptions by the leaders of the medical profession in the centers of medical education and activity in this great country, in conference, on subjects of professional organization, State medicine, and public hygiene. On each occasion, of the addresses which I have been privileged to give by invitation before large professional audiences at the American Medical Association, at the Association of Medical Editors at Milwaukee, the Chicago Medical Society, the Pan-American Congress, and the State Medical Association of New York, the opinions and views which I have ventured to express on subjects, such as water-borne cholera, medical editing, and medical code, in its relations to professional and public interests, etc., have been received with plaudits of unusual warmth. They have been emphasized by overwhelmingly kind expressions of approval from representative men on the spot and subsequently at Boston, Philadelphia, Baltimore, Cincinnati, Detroit, and other cities which I have visited with the Pan-American delegation. Dr. Hammond affects to fear that I may have hurt the feelings of Dr. Pepper and other eminent friends, and of the medical profession of Chicago, but it is precisely from them that I have received the warmest expression of approval. The distinguished president of the Pan-American Congress personally congratulated me after the delivery of my address, on the tact and delicacy with which, he was pleased to say, that thorny subject had been handled, expressly observing that not a word had been said to which reasonable objection could be made. I did not mention condurango, cerebrine, or Columbian chemicals; and I meant no disrespect to the equator. This outrageous outburst of injured innocence and wounded modesty appears to me, therefore, as I understand it does to others, comical but unimportant.

I have received more numerous, more enthusiastic and grateful indorsements of the views expressed by me in the Washington Congress than of any other of my utterances on this soil, warmly and universally as they have been applauded—far beyond their merits, no doubt, but with the gracious and widespread cordiality which makes my visit to America one of the most delightful memories of my life. This general approbation and unvarying courtesy are only accentuated by the critical fury and inhospitable rudeness of your present correspondent.

Let me now take this last opportunity, since I am leaving these hospitable shores to-morrow, of expressing once more the delight with which I have enjoyed this opportunity of making the personal acquaintance of such great numbers of my American colleagues.

Let me record my deep sense of the high honor which they have everywhere done me and my gratification at their assurances that my visit has not been without usefulness. Let me add the expression of my respect and admiration of the marvelous growth and development of medical skill and education and of the great medical institutions in all parts of this vast country.

I bear away with me many treasured friendships and innumerable assurances of friendly esteem, which I hope will long be continued. I carry with me to my English home associations and recollections which will always bind me in gratitude and affection to the great English-speaking profession on this side of the Atlantic, whose brotherhood we all, in Great Britain, so highly prize, and with which, now for many long weeks, I have been privileged to be in close, happy, and never-to-be-forgotten communion.

ERNEST HART.

Proceedings of Societies.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

Held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 5, 6, 7, and 8, 1893.

SECTION IN GENERAL SURGERY.

(Concluded from page 415.)

Orthopædic Apparatus.—Dr. A. M. PHELPS, of New York, exhibited several mechanical appliances: (1) A hip-joint splint, giving absolute fixation and lateral traction, by the use of which cases recovered without angular deformity; (2) A powerful instrument for operating on clubfoot in the adult after subcutaneous tenotomy; and (3) A pure aluminium corset which attracted much favorable comment.

Homologous Ligature of Divided Arteries.—In a paper with this title Dr. T. H. MANLEY, of New York, dwelt upon the subject of the homologous ligation of arteries in amputation, with a consideration of the applicability and limitations of torsion as a hæmostatic agent. He had performed several experiments upon the arteries of the dog and had found that the ligation of the vessel with its own living walls was the ideal method when it was practicable. He varied the technique in different cases. In one class he would simply bisect the vessel and ligate the redundant slack. He had in this way succeeded in obturating the saphenous vein in man. But in large arteries he would recommend one of two plans: One was to cut the trunk into three loops and stuff one end into the open lumen of the vessel and tie the other two free ends over it. The other method was to divide the vessel into four loops—two lateral, one posterior, and one anterior. The antero-posterior should be first knotted and pressed into the vessel's open orifice and the two lateral loops should then be secured with a triple reef knot. The tissues should be opposed in an orderly manner before closing the wound. The speaker said that the principle of the procedure, if attempted in time and practicable, would have an extensive range of application. Already he had utilized this plan in hernia operations, obturating the inguinal and femoral canals with knots made up of living tissues.

Combined Internal and External Urethrotomy with Vesico-urethral Drainage in the Treatment of Multiple Urethral Stricture.—Dr. JUAN MARTINEZ DEL CAMPO, of Mexico, presented a contribution on this subject. He said that all the methods which had been recommended for the cure of multiple strictures of the urethra, of gonorrhœal origin, had not been followed by permanently curative results. This observation was applicable alike to cases treated by gradual dilatation or by internal or external urethrotomy. The author sought to prove that urethral and vesical drainage following upon internal and external urethrotomy gave better and more permanently curative results than any other method of treatment. His conclusions were based upon the consideration of eight hundred to a thousand cases of patients who had been kept under observation during a period of ten years. About one fourth of the cases were patients who had been operated upon by this method several years prior to the date of the author's paper. In these the urethra had been examined to ascertain the condition of the canal after a long post-operative period. In all it was found that no relapse had supervened. The permanent excellence of the result the author attributed to the effect of the drainage-tube or catheter which was allowed to remain *in situ* for some variable length of time, and which, by causing an acute suppurative urethritis, had a tendency to disintegrate or resolve the embryoplastic tissues which constituted the stricture. His general conclusions were: (1) Multiple

strictures of the urethra of gonorrhoeal origin represent a clinical condition which is very frequently of long duration. (2) This condition seriously compromises the integrity of the genito-urinary apparatus, and consequently is of more or less menace to life. (3) The various methods which have been hitherto practiced for cure are only palliative, because they are almost invariably followed by relapse. (4) The treatment which appears to be most satisfactory because of its more permanent results is the combined method of internal and external urethrotomy associated with vesico-urethral drainage.

Traumatism and Traumatic Aneurysms of the Vertebral Artery.—Dr. RUDOLPH MATAS, of New Orleans, read a paper on this subject. He said that the operative surgery of the vertebral artery might be truly said to be an acquisition of the latter part of this century. Up to 1860, few surgeons had given any personal attention to the subject. The names of Dietrich, Velpeau, Munzianze-Ypollito, Sédillot, Fréys, Chassaignac and Laudi, Respoli, Maisonneuve, and Barbieri would comprise a list of the important contributors, the majority of the leading contemporary teachers believing that the vertebral artery was of scarcely any practical interest to the surgeon, and barely mentioned it in their texts—A. Cooper, Lisfranc, Vidal, Malgaigne, Guérin, Béraud, and Follin being notable examples of this indifference.

In 1834, Sanson, in describing a fatal case of gunshot injury of the vertebral artery that had been attended at the Hôtel Dieu of Paris, said: "The vertebral artery can not be ligated on account of its great depth, nor compressed because of the osseous canal which protects it; it can still less be cauterized. The wounds of this vessel are beyond the resources of art" (*Traité des hémorrhagies traumatiques*, Paris, p. 352). And the classical teaching of the day agreed with him until 1858, when the accomplished Maisonneuve, assisted by Favrot, succeeded in ligating the vertebral artery in a case of gunshot wound of the neck.

Various methods for the systematic and typical ligation of the vertebral had been suggested by Dietrich, Respoli, Yppolito, Fréys, and Chassaignac, which had received the attention of Velpeau, but no one had yet given a demonstration of the practicability of the typical ligation of the vertebral until Andrew W. Smythe, of New Orleans, successfully performed the operation on July 8, 1864, with the view of cutting off the collateral circulation to a subclavian aneurysm through the circle of Willis. This was the patient Banks, on whom, several weeks previously, he had ligated the innominate artery with complete success for the first time in the history of surgery.

After Smythe's brilliant demonstration the operation immediately became one of the classical acquisitions of surgery, and the comparative facility and benignity of the double ligation has been shown (apart from traumatic or surgical conditions) by the numerous but ineffectual attempts made to cure epilepsy by the ligation of both vertebrals by Alexander, of Liverpool, Bernays, of St. Louis, and Chalot, of Toulouse, France.

It was the good fortune of the author to have brought to his clinic in the New Orleans Charity Hospital, on July 6, 1888, a young mulatto boy who was suffering with a traumatic aneurysm of the vertebral, resulting from a gunshot wound in the upper part of the neck. Upon examination, a traumatic aneurysm of the right vertebral artery was found which occupied the suboccipital triangle and involved the artery in the atlao-axoid space. The patient was at once put to bed and a three-pound weight applied directly over the tumor and held *in situ* with an elastic bandage round the forehead.

After four days, as little impression had been made upon the tumor by the pressure, two long electrolytic needles, connected with the negative pole of a galvanic battery, were introduced

as deeply as possible into the softest parts of the tumor, and the current furnished by twelve cells applied. This application lasted about an hour without any perceptible results. Two days later the tumor was incised and the sac extirpated, and the bleeding point plugged with small aseptic sponges, over which a thick packing of iodoform gauze was placed, a careful sublimate external dressing applied, and the whole firmly held in place by an elastic woven bandage wound over the forehead and neck. Eleven days after the operation the wound was entirely healed, and three weeks later the patient was discharged from the hospital entirely well. Eleven months afterward the patient had returned to the hospital with the wound cicatrized and entirely free from any aneurysmal lesion.

Injuries of the vertebral artery were, fortunately, of great rarity. A glance at the surgical anatomy of the vessel would at once remind us of the magnitude of the technical difficulties in the way of its atypical ligation, and of the errors of diagnosis to be incurred owing to the proximity of so many large arterial trunks. Furthermore, the unique termination of the vertebral artery in the cranial cavity—where, anastomosing directly with its fellow artery, it became continuous with the carotid system through the circle of Willis—would convince us of the unreliability of either proximate or distant ligation of this artery as a permanent means of controlling the blood supply of any aneurysmal tumor that might be situated between either one of its cervical extremes.

One of the initial difficulties usually presented by aneurysms of the cervical portion of the vertebral artery was that of differential diagnosis from similar tumors connected with the carotid and its branches. In forty-four and two thirds per cent. of the recorded traumatism of the vertebral artery hæmostasis was attempted by ligation of the carotid alone, or the carotid together with some other artery—inferior thyreoid (Maisonneuve), occipital (Fenger)—the error being recognized only *post operationem*.

After searching all the available literature, the author had succeeded in collecting fifty-three cases of lesions of the vertebral artery, which he had divided into three groups:

1. Endocranial aneurysms, eleven cases.
2. Extracranial or cervical aneurysms, twenty cases.
3. Wounds or lesions of the artery involving its surgical or extracranial portion, twenty-two cases.

Out of this total of fifty-three cases he found that forty-five had died in direct consequence of the lesion of the vertebral artery, or complicating circumstances associated with it.

The cases of endocranial aneurysm had resulted, with one exception, from the degenerative changes in the endocranial arteries, and these cases, without exception, had ended fatally.

Of the twenty cervical aneurysms, six had recovered, leaving a mortality of seventy per cent. for this class of injuries. These aneurysms, with one exception, were traumatic. The non-aneurysmal injuries, of which twenty-two were recorded, were, with the exception of three cases, the result of traumatism, chiefly stab, punctured, or gunshot wounds. Of these twenty-two cases, only two recovered, leaving a mortality of ninety per cent.

If we added the cases under Group 2 to the cases under Group 3 we would then have forty-one cases of wounds with a total mortality of 80.69 per cent., and with recoveries amounting to 19.31 per cent.

Upon investigation of the immediate causes of death in the forty-three tabulated cases, we could readily recognize five essential factors, which, in the order of their frequency and importance, were as follows: (1) hæmorrhage; (2) shock; (3) sepsis; (4) exhaustion; (5) cerebral complications.

A traumatic aneurysm of the vertebral artery occurred only

as a sequel to the original injury, but the clinical difference between a primary bleeding wound of this artery and the false aneurysm that might follow it was of sufficient practical interest in the treatment to justify a separate consideration of the two conditions. While the prognosis of traumatic aneurysm was very grave, the percentage of recoveries was greater than the primary bleeding injuries of this artery; in a tabulated record of twenty cases of traumatic aneurysm, six patients, or thirty per cent., had recovered, while in a collection of twenty-two cases of primary non-aneurysmal injuries, only two, or 9.2 per cent., had recovered.

The six successful cases were as follows:

1. Moebus, 1827. Treatment: Rest and local application of ice poultices.

2. Warren Stone, of New Orleans, 1849. Treatment: Opening of the sac and plugging of the wounded artery.

3. Kocher, Berne, 1872. Treatment: Incision of the sac and application of styptic plug into the orifice of the vertebral canal of the atlas.

4. Weir, of New York, 1884. Treatment: Digital and direct compression, rest.

5. Christian Fenger, of Chicago, 1881. Treatment: Ligation of common carotid and occipital, opening of the entire sac, ligation of the vertebral artery between the axis and atlas. In this case the vertebral artery was as large as the internal carotid.

6. Rudolph Matas, of New Orleans, 1888. Treatment: Rest, cold, pressure, electrolysis, incision, extirpation of sac, plugging of bleeding point.

The author had arrived, therefore, at the following conclusions:

A. *Treatment of Traumatic Aneurysms*.—1. There are certain favorable cases (Moebus, Weir) of traumatic aneurysm in the upper and more superficial portion of the artery in which recovery is possible *without operative interference*; rest, direct compression, and cold being apparently sufficient to arrest the circulation in the tumor.

2. That in every case, when the danger of rupture of the sac is not immediate, good results may be expected, if only as adjuncts to future radical treatment, from the systematic application of cold, local and general rest, using for direct compression ice bags containing shot, which are easily adapted to the contour of the affected region.

3. That in the majority of cases the natural tendency of the aneurysm is to progress rapidly to a fatal termination in spite of the preceding measures, the sac usually rupturing in the direction of the weakest point—viz., the track of the wound that caused it.

4. But this tendency to spontaneous rupture is markedly favored by the increased tension caused by the ligation of the carotid trunks, so frequently and unfortunately done under the impression of a mistaken diagnosis.

5. That this deplorable result should always be avoided in case of doubt by a careful observation of the effects of temporary compression of the carotid upon the circulation of the tumor before applying the definitive ligature.

6. That in almost all cases but one (Fenger's case), in which a deliberate and prepared attempt has been made to ligate the artery in the aneurysmal region or at the bleeding point, the efforts of the operator have been frustrated by the copiousness of the hemorrhage, and temporary plugging of the bleeding spot and, at times, the more accurate plugging of the arterio-vertebral canal have been forced upon the surgeon as methods of necessity instead of methods of election.

7. That, fortunately, this method of plugging, when combined with free exposure of the bleeding region and clearing

out of the clots, has thus far given the most encouraging results, and that the more aseptic and non-irritating the material used in plugging, the greater the simplicity of the after-care of the case. Judging by the especially fortunate or excellent results which were obtained by Warren Stone, of New Orleans, in 1847, with plain charpie lint; J. Mason Warren, of Boston, with sponges; by King, of Hull, with oiled lint; by Küster, of Berlin, with iodoform gauze; by Simes, of Philadelphia, with plain lint, and my own experience with well-sterilized sponges re-enforced by iodoform gauze, it would not be necessary to resort to styptic plugs (as in Lücke's or Kocher's cases), which have a tendency to inflame a wound and render its aseptic management most difficult. In addition, as in the writer's case, small fragments of sterilized sponge, if they are used only in plugging the canals, have the advantage that they may be allowed to remain *permanently* in the wound, where they are incorporated as *grafts* by the living tissues.

8. That the use of coagulant injections is especially to be condemned, the perchloride of iron (as in Lücke's case) having proved most pernicious. Ergotin (Langenbeck) injected into the periphery of the sac may aid in effecting a cure, but it is exceedingly doubtful that this material will distinguish itself more favorably in this region than in the treatment of other aneurysms. While the newly isolated physiological fibrin ferments (Wright) may prove less irritating, they will be likewise open to objections from the mechanical standpoint (embolism). Possibly electrolysis and Macewen's method of securing the formation of white thrombi by "needling" may claim some success in the future, but this is very doubtful, and the most authorized opinion at present would point to—

9. The acceptance of the method of Antyllus, modified by the conditions of modern surgery, and the only reliable, if still dangerous, method of dealing with this always formidable condition, at least in the majority of cases. If this operation is decided upon, every preparation should be made to meet all emergencies. Saline infusion may be required, but a good supply of sterilized sponges, iodoform gauze, and long-handled strong hemostatic (hysterectomy) forceps will be most useful, the latter especially in grasping bleeding points, or in applying strong pressure to the deep and unusually rigid tissues in which they are found. The gouge, chisel, or "rongeur" forceps should not be forgotten; the rapid resection of a part of the transverse process may be required, in order to permanently secure the artery, though, usually, the plugging of the arterio-vertebral canal alone will be quite sufficient to accomplish permanent hæmostasis, and should always be attempted first, if only as a provisional measure, or in cases in which the exhausted condition of the patient will not permit more radical procedures.

When the aneurysm is well circumscribed, is high up in the neck, and ordinary local treatment has failed and the operator decides upon the method of Antyllus as a last resort, then it is justifiable to make an incision parallel with the anterior border of the sterno-mastoid, and, following the lines mapped out by Frays and Chassaing, reach the vertebral below the anterior tubercle of the sixth cervical transverse process and under the sheath of the carotid compress the vertebral before it enters the foramen, with the finger of an assistant. In that way the arterio-vertebral circulation will be temporarily arrested until the wounded artery has been definitely secured at the bottom of the aneurysmal cavity. By this procedure there will be much less traumatism inflicted on the weakened patient than if a formal ligation is attempted. In addition, the danger of secondary cerebral complication will be lessened.

10. In the extremely rare cases of idiopathic cervical aneu-

rysm, and in the circumscribed traumatic aneurysms that are situated high up in the posterior portion of the neck, and which would not be encroached upon by any of the classical incisions for the ligation of the vertebral artery at its origin, a ligation on the Hunterian principle might be attempted with some prospect of success, especially if cold, pressure, and rest were resorted to as adjuncts in the treatment. While the collateral flow from the circle of Willis is very rapidly re-established—more so even in the vertebral circuit than in that of the carotid—it is nevertheless possible that the contents of the sac may be completely coagulated before this collateral supply has been re-established.

In aneurysms that are situated lower in the neck, the Hunterian ligation, if applied by any of the classical incisions for securing the vertebral at its origin, will almost certainly end in an Antyllian operation, for it will be impossible to reach the trunk of the artery without involving the sac in the incision.

B. Treatment of Primary (Bleeding) Wounds.—1. In the management of bleeding wounds (non-aneurysmal) of the vertebral artery, the principles of treatment are practically the same as in those which guide the surgeon in the open or Antyllian method of attacking the traumatic aneurysms of this artery.

2. In some rare cases the nature of the injury is such that a direct attack on the bleeding point is practically impossible; this is notably true of those complicated gunshot injuries in which the missile has penetrated through the mouth and the blood is flowing into the pharyngeal space. In these cases there is usually an associated wound of one of the carotid branches, especially the internal carotid, and the hemorrhage is so violent that death takes place before any assistance can be rendered. The diagnosis can be attempted under these circumstances, and, as plugging through the mouth is impracticable, the only hope for the patient lies in the immediate but provisional control of both the common carotid and the vertebral artery of the corresponding side, with a view of cutting off the entire arterial supply from the injured region. This result can be obtained without much difficulty by rapidly exposing the carotid sheath at the point of election and passing a ligature round the artery, which is not to be closed, however, but should be transferred to an assistant, who can control the circulation of the artery by simply pulling on the loop. The operator then presses with his finger in the depth of the wound at a point just below the anterior tubercle of the sixth cervical vertebra, and in this way arrests the flow from the vertebral artery. A complete control of the two vessels is thereby obtained, the hemorrhage is arrested, and the diagnosis can be undertaken with more deliberation. The definitive ligature may then be applied to either one of the exposed arteries, or to both if necessary.

In cases complicated with an injury of the internal jugular high in the neck and communicating with the pharynx, the resources of surgery are reduced to a minimum. But then the traumatism is so great that the shock of the injury alone will often kill the patient almost instantaneously, and if this is not the case the bleeding will be so profuse that life will ebb out long before any efficient assistance can be rendered.

3. In the more common cases the difficulties and dangers are greatest in the lower cervical course of the artery before its entrance into the foramen of the sixth cervical vertebra, owing to the immediate proximity of vital structures, especially on the left side. Wounds of this portion are generally fatal before the surgeon is called upon to deal with them, owing to the rapidly lethal effects of associated hemorrhage from the carotid and subclavian arteries and corresponding veins. In the wounds of this and the remainder of the cervical portion of

the vertebral artery the fundamental maxim in the treatment of hemorrhage—viz., "to control the artery while bleeding and at the bleeding point"—imposes itself as a first duty. This control can only be effected by the methods previously indicated when dealing with traumatic aneurysm, and may be finally summarized in a general way as follows:

1. If allowed by the position of the wound, deep and strong pressure should be made by an assistant below the carotid tubercle, with a view of compressing the vertebral at this point.

2. The wound should be freely enlarged in order to more directly expose the artery.

3. Direct pressure with the finger in the wound should be applied to the bleeding point.

4. Pressure on the bleeding point with strong hemostatic (hysterectomy) forceps, holding a small sterilized sponge, or by actually clamping the bleeding point *en masse* as a substitute for the finger.

5. Denudation or exposure of the artery in the intertransverse space, or, if necessary, by biting with "rongeur" or gouging out the antero-external portion of the bony canal in which the artery is contained. This last procedure is perfectly practicable in any part of the vertebral canal, provided a free exposure of the transverse process is obtained and the bleeding be provisionally controlled by digital or forcipressure.

Epithelioma of the Tongue and its Treatment.—This was the subject of a paper by Dr. L. C. LANE, of San Francisco. The author accepted the view of those observers who asserted that epithelioma was the only form of malignant lingual neoplasm except those that might have reached the tongue by primary invasion of contiguous structures. Epithelioma had its origin deep in the epithelial elements, and, according to its site, might be divided into two classes—the excrecent and the internal or the interstitial. Each form might arise from a papilla, wart, nevus, or limited abrasion. In the excrecent or papillary species the growth was outward, tuberculated or wart-like prominences being isolated or forced into an uplifted plateau. The penetrating species commenced usually on the side of the tongue, the new-formed elements crowding upon and destroying as they invaded the deeper structures, finally reaching and opening blood-vessels of more or less magnitude. These metastatic processes were continued until the affection had no definite bounds.

The causation of epithelial cancer of the tongue was unknown, but certain agencies might be cited as promoting its evolution, such as calcareous incrustations on the inner face of the teeth, sharp points or edges of the teeth which continued to wound the borders of the tongue, and the habit of thrusting the tongue into an interstice between teeth. The use of tobacco was probably a causal agency, the disease being far more frequent in men than in women. Epithelioma of the tongue seldom appeared before the fortieth year of age. When allowed to run its course, lingual cancer completed its fatal work within fourteen months. Operative interference did not offer encouraging prospects, though probably as high as seventy-five per cent. of the patients attacked might be saved if the disease were seen in the primary stage and treated by intelligent surgery, but meddlesome ignorance too often monopolized the precious time during which the patient might be saved. The absence of metastatic glandular infection must be regarded as the *sine qua non* of safety. When intelligent management had stepped in and prolonged life, two years was usually the limit of time before death ensued. The author's paper considered at length the gross pathology, diagnosis, and treatment of lingual epitheliomatous growths, and contained ample bibliographical research with citations of cases.

The Mechanical Treatment of Osteo-arthritis of the Knee.—Dr. HENRY LING TAYLOR, of New York, described and demonstrated the mechanical procedures in the above condition. He said that osteo-arthritis of the knee, or "white swelling," was usually a tubercular process, beginning in an adjacent epiphysis or in the synovial membrane, and, if unchecked, finally involved most of the joint structures. It was accompanied by the usual symptoms of chronic joint inflammation, of which spasm and atrophy of the muscles acting upon the joint were practically the most important, as indicating most exactly the degree of joint irritation; and also by certain characteristic deformities at the knee—namely, flexion, eversion, abduction (*genu valgum*), and subluxation backward of the head of the tibia. The deformities were due to the mechanical conditions under which the spasmodically irritated thigh muscles acted. The general indication for treatment was to improve the nutrition of the patient, and thus insure a blood supply of good quality to the diseased area, facilitating the reparative process. One of the most gratifying results of proper mechanical treatment was the marked and speedy gain in general health and vigor. The local indications for treatment were to inaugurate and promote the process of repair at the site of disease, and to prevent or correct deformity, in order to restore, so far as possible, the functions of the joint. These local indications were met by mechanically providing conditions favoring the relaxation of the spasmodically contracted muscles, a normal local circulation, gradual correction of the deformity, and, later, the protected use of the joint. In the stage of irritation and disintegration strict local rest was enforced by the use of an apparatus giving counterextension and fixation, and for a month or two the patient was kept recumbent. When the local circulation and position of the limb had sufficiently improved, locomotion was permitted first with, subsequently without crutches, but always protected by the apparatus. After a considerable period of such enforced rest, during which the reparative process was completed, the neuro-muscular apparatus should be regulated and strengthened by allowing limited motion at the joint; last of all, the joint might be gradually trained to bear weight, as a preparation for discarding all treatment. The Dow supporting and protective apparatus with a lock-joint at the knee might be used to meet all these varied indications; the aim of the author, however, was not to advocate the use of any particular apparatus, but to point out the varying indications presented by the disease in its different stages, and that the elements of protection artificially supplied should vary to correspond. Protection from external and internal trauma with progressive replacement of distorted parts should be furnished at all stages—at first with enforced disuse, later with protected use, limited by the operator to meet the conditions present.

Dr. Taylor also demonstrated several other improved mechanical appliances interesting to the orthopedist.

Some Points in the Surgical Treatment of Appendicitis.

—Dr. AUGUSTUS P. CLARKE, of Cambridge, Mass., in a paper on this question, said that, from a careful study of the histories of cases coming under the writer's observation during a number of years past, and also from learning in many instances the final results of those cases, it was not unsafe to say that in every case in which there was reason to believe that the vermiform appendix was involved, though the symptoms at first might be mild or transient, the surgeon or medical attendant should be ready to institute measures against the occurrence of sudden surprises and unusual results. There was great probability in almost any event that the appendix, during an attack of inflammation, would become adherent to other parts in the immediate vicinity. In many cases, if not in the most, incision

should be made over the point of greatest tenderness; this corresponded to the McBurney point, which was midway between the umbilicus and the superior spinous process of the ilium, and in the right linea semilunaris. Such an incision would afford an opportunity for free drainage and for flushing the parts with warm carbolized water or with water of the temperature of 115° to 120° containing boric acid or other antiseptic agents that could safely be introduced into an abscess cavity. A liberal incision, when timely made over the tender part, had always yielded in the cases occurring in the author's practice an immediate and permanent result. In all cases after the incision had been made, the parts should be thoroughly explored; if the appendix was within easy reach it should be brought forward and then sewed off by means of sutures of aseptic kangaroo tendon. The cordwainer's stitch would be most convenient for accomplishing this. If, however, the appendix was bound down by firm adhesions, or if it could be found without much difficulty or without doing excessive violence to the cæcum or to other parts, it would be far better to allow it to remain, for its presence, when thus left, would not seriously interfere with the patient's recovery. In most cases when the mesentery or other parts had been sufficiently detached, the appendix should not be tied but should be clamped, and then sewed off by means of carbolized animal sutures; as soon as all hæmorrhage had been controlled the appendix might be incised about two centimetres from the cæcal tissue. In order to prevent adhesions of the stump or base of the pedicle to other structures, the peritoneal tissue in immediate vicinity of the margin of the incision should be closely approximated by a subperitoneal suture. The smaller-sized kangaroo tendon, rendered aseptic, should preferably be the material for such use. A thorough closure of the peritoneal surface of the wound thus effected would not only obviate the occurrence of agglutination of the parts, but would also help to prevent the escape into the peritonæum of aseptic matter that might gravitate toward this point, and thus preclude the occurrence of a fistulous tract. The entire wound should, as far as possible, be kept in an aseptic condition. Aristol and iodoform would be found to be excellent adjuvants in maintaining this condition of the tissues. The danger of the subsequent occurrence of hernia might be overcome by paying strict attention to the closure of the severed layers that had been divided in the operation; the peritonæum, the muscular tissue, the fascia, and the external integument should each be brought together separately. Carbolized animal sutures should be used for this purpose. Entire closure of the wound by first intention could be effected only in those cases in which the operation had been undertaken in the early stage of the attack. After the formation of an abscess complete union at first could not be expected to follow, because some method for facilitating drainage for a while would have to be employed. The different steps of an operation were much complicated when there was present an unusual abdominal distention; so also it would be in cases in which there was excessive or marked obesity. Trendelenburg's posture in this, as in all cases of abdominal section for intestinal affections, could not be overestimated. In those cases in which some means for drainage became necessary every detail in the treatment should receive the strictest attention, for if there should occur any hindrance to a free discharge of the exudation a risk of a dangerous sepsis to the organism would be incurred. In every such case of abdominal section, when a drainage-tube had been employed, the possibility of the occurrence of hernia should not be overlooked. In all cases, whether the drainage-tube had been required or not, a firm binder or a thorough bandaging should be employed; the patient for some weeks should be kept for the most part in the horizontal position. The question often arose,

Should the surgeon, when called upon in the later stages of a case, advise operative interference? In answer to this it might be remarked that our experience in such cases was favorable to the adoption of an exploratory incision. When an operation was undertaken in the later stages the patient must, of course, assume more risks, for the chances of recovery were much less than when an operation was attempted much earlier, though surgical measures at such late date might prevent the rupturing of an abscess into the peritoneal cavity; when there had been such a rupture, removal of the pus and cleansing of the parts might afford an opportunity for a retrograde process of the disease to take place. Nothing, therefore, but the occurrence of extreme collapse should weigh against the employment of operative measures. In those cases of appendicitis which had gone on to suppuration before operative measures have been undertaken there might occur secondary abscess in other portions of the abdominal cavity. An operation to insure relief must therefore embrace a course of procedure which would afford a free discharge to all accumulation of purulent exudation; it would sometimes be necessary to make a prolonged dissection at different parts and also to overcome adhesions of an unusual extent. Great care would also have to be exercised lest an opening be made into an adherent intestinal mass. In some instances portions of the epiploon might have become gangrenous; there might occur in the veins of the abdomen an inflammation that might extend outward to the other vascular tissue. In carrying out for these complications the necessary surgical treatment much judgment would have to be exercised and much precaution taken that the dissection or search be not prolonged beyond what might afterward prove to be a beneficial or safe proceeding.

Empyema and its Treatment.—Dr. CARL BECK, of New York, read a paper with this title, in which he said that he did not know of any other place where empyema was as prevalent as in New York city and its vicinity. During eleven years the author had treated one hundred and thirty-four cases of empyema by resection of one or more ribs. The first series, containing thirty-five cases, when he was strongly recommending resection even in children, had been published in New York on December 6, 1886 (*Med. Presse*). In reference to this publication he felt that he was entitled to some credit in having been the first surgeon who recommended resection not alone, as usually understood, for the purpose of having sufficient drainage, or of favoring the thorax to approach the pulmonary pleura, but for *enabling the surgeon to introduce his index finger and of making it possible to palpate the pleural walls*. This was the only procedure which with certainty showed the presence and allowed the immediate removal of lumps consisting of fibrinous or cheesy products attached to the pleura. (Nine among ten cases showed lumps of goose-egg size.) As long as we had no physical, mechanical, or speculative means to distinguish between this condition and a simple collection of liquid pus, or as long as we could not liquefy the lumps by the use of a dissolving injection first, aspiration and even incision were insufficient, and therefore not the correct surgical procedures.

Among the 134 patients, 48 were below three years, 56 between three and ten, 11 between ten and sixteen, and 19 were above this age; 14 had died (10 from tuberculosis), (9 were older than sixteen), 105 were simple acute cases, 29 were complicated. Among 5 double-sided cases, 4 patients recovered.

All the empyemata with offensive smell (4 cases) had ended fatally.

Average time of healing process, five weeks.

In the case of a baby six months old, recovery was perfect after six days.

Anæsthetics were administered only when the pulse was

strong. Generally caffeine was given before. Otherwise an ether spray was applied, this explaining why no accident happened during operation. As the diaphragm after evacuation always rose upward, he usually resected the sixth rib (never below). Through the anterior axillary line, under antiseptic precautions of course, he made an incision about three inches long which at once divided the periosteum. Then with a small curved elevator he lifted the periosteum from the rib; the instrument was then pushed underneath the rib from one to the opposite side, so that the rib was riding on it. A blunt hook retracted the tissues alongside the rib toward the axilla; one blade of bone-scissors was introduced below the rib, between hook and elevator, and the same cut through. Then the elevator was pushed toward the sternum, thus freeing the rib from the last fragments of adhering periosteum; the hook was inserted at the opposite edge of the wound and there the rib was divided with the scissors in the same manner. A piece long enough to allow the introduction of the finger sufficed. It was impossible to strike the intercostal artery during these manipulations. Through a small opening made in the pleura with a bistoury a Péan forceps was introduced and the pus slowly evacuated. A sponge was pressed against the opening from time to time to interrupt the stream to avoid too rapid an expansion of the lungs. The whole evacuation required at least twenty minutes' time. The finger was now introduced, and if lumps were found to be adherent to the pleural walls, they were wiped off with the index finger, or with a blunt spoon made for this purpose, similar to a spoon for stone in the bladder. Irrigation by a bichloride solution, 1 to 5,000, was mainly used for mechanical purposes—that was, to evacuate thoroughly. The pleura with four iodoform silk sutures was then stitched to the skin, forming a mouth (pleurostomia.) This covered the wound surface, prevented after-bleeding, and kept the opening large. Then iodoform powder was put into the cavity to reduce the secretions. The wound was then covered with iodoform gauze. The whole side was protected by a pasteboard-like piece of sterilized moss, which, after being slightly dipped into a solution, adapted itself to the shape of the body like a plaster-of-Paris dressing. A strip of rubber adhesive plaster kept it tight, so that no air could enter. During respiration it acted like an aspirating valve and absorbed at the same time. For the first few days the dressing of the diseased side surrounded the whole arm. After three days a rubber drainage-tube, of the size of a man's index finger, secured by two large safety-pins in the shape of a cross, was introduced. He had refrained from introducing it immediately after operation, since he had observed considerable bleeding and irritation. Undoubtedly the constant respiratory movement of the pleura caused irritation in the way of rubbing and pressing. It seemed that after the pleura became more accustomed to being exposed to the air they could bear irritation by a foreign body better. As the cavity was entirely emptied after the operation, there was no necessity for washing it out afterward. On an average, two weeks after the operation a smaller drain was introduced, which gradually was shortened. The patient had always to lie on the diseased side of his thorax and was lifted up every four hours by elevating his pelvis and legs in a vertical direction, so that the pus could flow out into the dressing. The latter had to be changed twice a day for the first week, later on once a day, and after two weeks only every second or third day. The thermometer was used as the indicator for the treatment. The author's experience led him to the conclusion that *simple empyema operated upon early* would only under extraordinary circumstances take an unfavorable issue. The diagnosis of empyema had to be made by the aspiratory needle, which, if there was much cheesy accumulation or a small cavity

had to be introduced quite often at different points. He found it useful, when he could not draw any pus, to push the wire through the needle, a procedure which sometimes made a trifle of pus appear on the end of the needle. He might add that he did not advise resection in sero-fibrinous exudations, as had been recommended lately, but he had in such cases successfully injected a ten-per-cent. iodoform glycerin mixture into the pleural cavity, having first aspirated.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Fifteenth Annual Congress, held in New York on Monday, Tuesday, and Wednesday, May 22, 23, and 24, 1893.

The President, DR. MORRIS J. ASCH, of New York, in the Chair.

The Withholding of Reports of Operations for the Relief of Cancer of the Throat.—DR. D. BRYSON DELAVAN, of New York, read a paper on this subject. (See page 428.)

DR. J. SOLIS-COHEN, of Philadelphia: I think we are very much indebted to Dr. Delavan for calling our attention to this subject. There are various reasons which prevent men from giving statistics of their operations. The operations usually take place in busy hospital wards, and after the surgeon has attained a certain eminence and does not longer wish to advertise himself he neglects to present these cases to the profession. He may make a memorandum, but he is busy with his work, puts away his notes and forgets about them. Even many successful cases of operation for carcinoma of the pharynx, tonsils, etc., have thus never been reported. A younger man, on the contrary, will report his cases because he wishes his friends to know that he is in the field, and is as successful in the long run as his colleagues. Another point is this: A surgeon often operates and the case turns out unsuccessfully on account of neglect of the after-treatment. Some surgeons, for instance, will operate in a severe case in the morning and leave the patient to the usual attendant or to an assistant, and go fishing in the afternoon, and of course such men do not like to acknowledge their neglect. The patient may recover; but again he may not, and I think a great many failures are due to this cause—lack of proper supervision by the operator of the subsequent management of the case. Another cause: After a man gets along in practice he loses much confidence in statistics. A practical man, while he knows the general trend of opinion, finds that he does best by studying his own cases. He may have performed a certain operation fifty or seventy-five times, and he will know or feel that in certain cases the operation will or will not prove successful, no matter what the general statistics may indicate. Therefore, if we depend too much on statistics, we are in danger of not looking sufficiently closely into the merits of each particular case. The success of an operation depends on a variety of things: the condition of the patient, his surroundings, his opportunities for after-treatment, the stage of the disease, etc. The statistics of such men as Billroth, Krause, Lange, and others, who keep accurate records of their cases, are of course very valuable. In this country hospital practice is different, too, from that abroad. There, physicians are often paid for their services, and certain duties are expected in consequence. The personal responsibility is greater. Here we are not paid for our work in the hospitals, and unless a case presents some peculiar features to which we desire to call the attention of the profession, we neglect it, just as we neglect a good many other things as we get older.

DR. DELAVAN: I admit that it is very difficult to get accurate statistics, but do not see how we can advance unless through the medium of just such material. It is desirable that each of the members of this association should try to do his

part toward stimulating his surgical friends to greater accuracy of detail in this matter. In the statistics of the last ten years, those of the last five years are less favorable than those of the preceding five. This is said to be due to the fact that during the first five years the operations were performed by distinguished surgeons, whereas in the last five years they have been done more generally. This should induce us to ascertain who the best surgeons are for this class of operations. It is not alone the operation itself which requires especial experience and skill. The after-treatment is an all-important matter, as Dr. Solis Cohen has well said, and upon it will often depend the success of the case. There are so many difficulties in the way of successful after-treatment, and such variety is presented in the special necessities of different individual cases, that the full reporting of every case would, for the present at least, be valuable and instructive. The outlook for many of these cases is so unfavorable that we can not emphasize too strongly the necessity for recognizing and for giving to the world any information which promises to be helpful, even in the slightest and most remote degree. It is in this spirit that I have brought the subject before you.

Arthritis Deformans of the Larynx.—DR. W. E. CASSELLBERRY, of Chicago, read a paper with this title. (See page 430.)

DR. W. K. SIMPSON, of New York: I think the diagnosis of arthritis deformans of the larynx, unless rheumatic manifestations exist in other parts of the body, is very difficult to make. This was impressed on my mind by a case which was under my care for a number of years. The patient was a woman with arthritis deformans confined to the larynx. She was subject to acute exacerbations of the disease. The larynx was very much inflamed, and sufficient obstruction was produced to necessitate intubation. She did well under this treatment, and had no further trouble for a number of months. Her second attack was more purely of the arthritis deformans type. There was no acute inflammation of the larynx; on the contrary, it was very pale; the cords were adducted, and there was a swelling of the crico-arytenoid joints, necessitating intubation a second time. In consequence she has a permanent ankylosis of the right arytenoid articulation, and very little movement on the other side. The woman was thirty-five years of age, and gave a history of syphilis and rheumatism.

The question comes up why the breathing was so much interfered with in the case narrated by Dr. Casselberry. I think in these cases there is a certain amount of submucous thickening below the cords.

In another case that was under my care I think the trouble was congenital. The patient was a young man, aged twenty years; he comes from a phthisical family. There was marked hypertrophy of the tonsils, and very decided deformity at the right crico-arytenoid articulation. When phonation is attempted, the arytenoids override somewhat. In this case the rheumatic tendency may be thrown out. The young man came to me and inquired whether he could use his larynx in singing. I told him it was impossible to decide until he tried it. He did so, and found it impossible to continue for any length of time without suffering from hoarseness due to exacerbations of his condition.

DR. CASSELLBERRY: I regret somewhat that the discussion or criticism of my paper has not been more general, because I recognize the fact that its title and substance are unique. The relief which was afforded is readily explained by the fact that at the height of the seizure it was an acute exacerbation of a previously existing chronic arthritis. It is well known how small an aperture a patient can breathe through comfortably after he gets accustomed to it. One observes this in cases of stenosis of the larynx. We also know how quickly an attack of acute laryngitis, superimposed on this chronic condition, will

cause violent dyspnea. Such seems to have occurred in this case. In arthritis deformans or rheumatic states the patients are subject to acute exacerbations. It was so in other joints throughout the body of this patient; it was so in the larynx. The symptoms would remain quiescent for a time, and then the patient would be seized with an acute exacerbation.

Concerning the title of my paper, I endeavored to make it explicit that the name "arthritis deformans" was adopted, instead of rheumatoid arthritis or rheumatic gout, which names are the ones commonly employed, because of the position which has been taken by pathologists in general that this disease is entirely distinct from either rheumatism or gout; that it is not rheumatism, that it is not gout, and therefore entitled to an independent name. The laryngeal complication of arthritis deformans consequently is not correctly described as rheumatic or gouty, but should accord with the nomenclature of the general disease, and is best described under the name of "arthritis deformans of the larynx," as expressive of its independence of rheumatism or gout.

Laryngitis Hiemalis. Rhinitis Œdematosa.—Dr. J. C. MULHALL, of St. Louis, read a paper on each of these subjects. (See pages 431 and 432.)

Dr. E. L. SHURLY, of Detroit: In regard to the first part of Dr. Mulhall's paper, I think we shall all agree that the condition he refers to is a systemic affection, and is the result of what is known as "a cold," which may be due to malaria or some other bodily disturbance. It is a very common occurrence in emphysematous patients, or in the plethoric or obese. I have never regarded it as a local affection. I think it depends principally upon some irritation of the ganglionic nervous system.

In regard to the second part of Dr. Mulhall's paper, he has described purely laryngitis sicca, which, however, is not always accompanied by pharyngitis sicca. This is not particularly a disease of cold weather, for I have frequently observed it at all seasons, in young girls, especially in those who are taking music lessons; although seeming to be tolerably healthy, it will be found often that they have some derangement of the function of menstruation, or that they have been "crowded" by their work, or are too ambitious, seeking to do more than their nervous system can sustain. In these cases I have not found any signs of atrophic rhinitis—excepting once or twice. It always occurred to me that such were cases of "laryngitis sicca," and that the ætiology must be looked for in the general system. Local treatment does some good undoubtedly, but not very much. The restriction of work, and the use internally of phosphorus and iron, seems to do these cases the most good. Of all the local treatment, I have obtained the best results from the use of a mild spray composed of oil of tar and alcohol, and electricity.

Dr. J. WEIGERT, of Brooklyn: I quite agree with the previous speakers as regards the constitutional origin of rhinitis Œdematosa, but at the same time it is a very rare thing, in my experience, to find this condition as purely the result of systemic disturbance, without some thickening of the nasal mucous membrane—some chronic rhinitis. Of course, the principal factor is the constitutional one; but when this thickening does exist, I have found that the best thing to do is to apply the canter to the inferior and middle turbinated bodies. In other cases I do not think the local treatment is of any value.

Dr. C. C. RICE, of New York: I do not think that here in New York we are familiar with the variety of laryngitis that Dr. Mulhall speaks of—that is, laryngitis characterized by collections of dry scabby secretions in the larynx and independent of pharyngeal disorder. In my experience, such disease of the larynx is always secondary to nasal or pharyngeal trouble. I can not recall a single case in which I did not find some mor-

bid condition of the mucous membrane higher up, beginning in the post-nasal space and running down the posterior wall of the pharynx. The few exceptions to this general rule are those cases in which the disturbance in the larynx is out of proportion to that in the pharynx, owing to some peculiar exciting cause, such as is to be found in singers, actors, etc., who use their voices in an unusual way. We know that the exacerbations in pharyngitis sicca and atrophic rhinitis are more likely to occur in cold weather. Laryngeal disorder, independent of some pharyngeal disorder, I am not familiar with.

Dr. CASSELBERRY: I would support Dr. Mulhall's position regarding the independence of what he has termed "winter laryngitis." I can hardly accept that term, however, inasmuch as I have observed the same form of disease in Chicago at various times during the year. It has impressed me as a laryngitis sicca acuta—an acute form of laryngitis with deficient secretion. I have often been astonished at the amount of dry incrustation and the absolute aphonia at one moment and the comparatively good voice the next moment when the crusts were cleared off. I have observed it in patients who were comparatively free from nasal or pharyngeal disease. I say comparatively free because we rarely see anybody in Chicago who is absolutely free from nasal and pharyngeal disease. The patients referred to are those who suffer from what we call an acute cold, in which the brunt of the disease is borne by the larynx; usually, however, there is also acute pharyngitis and rhinitis of mild form, which is not the cause of the laryngitis in this instance, but simply an unimportant accompaniment.

Concerning rhinitis Œdematosa, I was struck with the aptness of this title, and believe the cases reported by Dr. Mulhall are closely allied to that Œdematous condition of the nasal mucosa which is associated with and which seems to underlie the formation of nasal myxomata, and which is also seen in association with bronchial asthma. Not that the asthma is caused by the nasal Œdema, but that the two conditions are simultaneous manifestations of the same vaso-motor paresis affecting the blood-vessels of the mucosa of both the nasal and bronchial tracts. I have observed also what may be an allied but not identical neurosis affecting the anterior ends of the inferior turbinated bodies. The particular case which is recalled to my mind consisted of a protrusion of the tissue of one or both inferior turbinated bodies—at times actually a half to three quarters of an inch outside the anterior nasal orifice. The membrane would protrude and again collapse by spells; when collapsed, being entirely withdrawn into the nasal chamber.

Dr. H. L. SWAIN, of New Haven: The gentlemen who have spoken about laryngitis hiemalis have come from soot-laden cities. In New Haven we also have something which corresponds to the description given by Dr. Mulhall. We burn no soft coal, therefore that can not be considered as a factor in the production of the disease. I myself am a victim of it, so I can speak with considerable authority. So far as my experience goes, I have never had it except in cold weather; I have no pharyngitis sicca; I have slight hypertrophic rhinitis. This past winter I had two patients similarly afflicted at the same time as myself. They were both university men, who were using their voices considerably in delivering lectures, and at that time I myself was straining my voice delivering lectures and attending to a heavy line of professional work. The weather was intensely cold. I am therefore inclined to agree with Dr. Mulhall in his remarks as to the ætiology of the disease. I have had this same trouble at the same season during three consecutive years, and am inclined to believe that it is partly due to overwork.

In regard to rhinitis Œdematosa, we also have such cases in New Haven, and I have this year been attending a patient who

has these attacks in connection with bronchial asthma. At the times when the swelling takes place the bronchial asthma is of extreme severity, and I have been unable to control it by treatment applied to the nose. I have frequently made appointments with this patient to cauterize the nose, and then found nothing there to cauterize. At other times I have cauterized existing hypertrophies, removed the spurs from the septum and tried to improve the general health, with a view to correcting the disturbance of the sympathetic nerves, and still the patient is subject to these same attacks if she goes out of town. While she remains in New Haven she does not have them, but when she comes to New York she invariably has an attack of oedematous swelling upon returning home.

Dr. F. I. KNIGHT, of Boston: I certainly can say that in the vicinity of Boston we meet with the form of laryngitis which Dr. Mulhall has described. The patients return to the hospital with the same complaint winter after winter, and I have met with them also in private practice. Of course, the form of laryngitis which is associated with atrophic disease above is more common, and that we are all familiar with, but I certainly have seen a good many cases where there was no evidence at all of anything in the nose or pharynx which could be considered a factor in the production of the disease. In the hospital cases, in my experience, there has been a good deal of thickening of the anterior surface of the posterior wall, where the secretion is prone to collect and dry, as well as on the cords, and here it furnishes an additional mechanical obstruction to the proper movements of the cords, producing aphonia in the morning, and later in the day simply more or less hoarseness. These cases occur in the winter; I do not know that I have ever seen a case in summer. The treatment that I have found most effective in these chronic, constantly recurring cases is a solution of silver nitrate, applied in varying strengths, and gradually increased to thirty or forty grains to the ounce. This has seemed more effective than any other treatment, and I have tried almost everything.

Dr. A. B. THRASHER, of Cincinnati: I think I can say, without an undue exhibition of personal pride, that I practice in a city the atmosphere of which is more filled with coal dust than any other in America. I have never seen this particular form of laryngitis unaccompanied by an inflammatory condition of the pharyngeal mucosa and also of the nasal mucous membrane. Almost invariably, in my experience, it has been produced by either an extension of the inflammation downward, or by an improper condition of the air when it enters the larynx, on account of mouth-breathing, or an inflamed condition of the upper air tract. Nor have I noticed it to be confined especially to cold weather. I have seen this condition of laryngitis sicca present in summer.

Dr. J. W. GLEITSMANN, of New York: I must confess that I am inclined to take the same position as Dr. Rice in the discussion of this subject, as I have never seen cases of laryngitis sicca without coexisting symptoms in the throat and nose. I have seen patients who have been under treatment for some time, and in whom the pharyngeal and nasal symptoms have disappeared, leaving behind that condition of the larynx which has been described here, and which approaches the condition of laryngitis sicca.

Dr. J. W. FARLOW, of Boston: I have never seen a case where there was not a dry condition of the nose, the nose being more open than it should be, and the morbid condition extending down into the larynx and pharynx. The hardened secretions are attached to one or both cords. I have had good success in treating these cases with oily preparations, which I consider fully as efficient as silver nitrate; at any rate, they should follow the use of the nitrate.

Dr. W. C. GLASGOW, of St. Louis: I did not hear the first part of Dr. Mulhall's paper, but from what I heard it struck me that the cases he reported were similar to the cases reported to this association by me at the Detroit meeting in 1885. Those cases were characterized by intense swelling, with great pallor of the mucous membrane and a discharge of livid serum. One case was typical. The patient was a man; he suffered with facial neuralgia and had the condition of the nose described above. The mucous membrane was white, discharging freely, and the nasal obstruction was marked. When the mucous membrane was touched, there was a fresh discharge of serum. There was intense pain on that side of the face. The nasal disturbance subsided without treatment when the neuralgia disappeared. I regarded this condition simply as a neurosis, and entirely independent of any local lesion. There was also in another case a certain amount of nasal thickening, with retention of secretion, which seemed to keep up the irritation, but, on the whole, I believed it to be strictly a neurosis. I also think that in bronchial asthma we have a similar condition of the bronchial mucous membrane that we have in the nasal membrane in these cases—a vaso-motor spasm of the arterioles of the mucous membrane, and an exudation into the membrane of the fluids of the blood. I base this theory upon the action of the nitrites and other drugs which give relief in asthma, and which are known as arterial dilators. In the treatment of these cases cocaine was absolutely useless. The only remedies that seemed to relieve them were the preparations of belladonna, morphine, and the nitrites.

Dr. S. W. LANGMAID, of Boston: One word about the cases of laryngitis with incrustation of the cords. I can not help thinking that the presence or absence of these crusts depends somewhat on the locality in which the patient resides. During my summer term at the hospital these cases are not common, and in private practice I have found them very uncommon. I agree with the gentleman—Dr. Shurly, I think it was—who said that he had often seen this condition in young girls.

Dr. MULHALL: The discussion in regard to winter laryngitis reveals two camps. It occurs to me that certain members have never seen the disease. Every one present is familiar with the ordinary laryngitis sicca, complicated with trouble in the upper air passages. It seems to me that the personal testimony of a member of this association, who is himself afflicted with this winter laryngitis, exactly as I have described it, should convince the gentlemen that such a disease exists, especially as other members have also observed this form of laryngitis, without any affection of the upper air passages. I accept the suggestion made by Dr. Casselberry to add the word "acute" to the title. This disease, as the doctor said, might be better called acute winter laryngitis, because it seldom becomes chronic. It is a condition which rapidly gets better, especially under vigorous treatment. The disease disappears when the patient removes to a warm climate. The form of laryngitis referred to by Dr. Rice and Dr. Gleitsmann is the one described in all text-books—the one with which we are all familiar. That form which I present has never to my knowledge been described. I mention the smoke not as a causative agent in producing this form of laryngitis, but as producing the color of the crusts. The crusts were black simply from the inhalation of soot. I do not think that an atmosphere laden with coal dust has anything to do with the production of the disease.

Some of the gentlemen confounded rhinitis oedematosa with another group of vaso-motor disturbances, rhinorrhœa, with chronic thickening of the nasal mucous membrane. In the condition I described the swelling is purely oedematous; it has nothing to do with the intumescent form mentioned by Dr. Casselberry. I have never read Dr. Glasgow's paper to which

he referred, and do not know whether these cases are the same as those he described. Before leaving St. Louis I mentioned this subject to him in his office that I expected to read a paper on this subject, and he did not call my attention to his paper. From Dr. Thrasher's remarks I infer that he has not seen the class of cases to which I refer. They are exceedingly uncommon.

(To be continued.)

Miscellany.

The Discovery of the Anæsthetic Property of Ether.—

The October number of the *Virginia Medical Monthly* contains a remarkably well written article by Dr. Luther B. Grandy, the editor of the *Atlanta Medical and Surgical Journal*, sustaining the late Dr. Crawford W. Long's title to be known as the discoverer of ether anæsthesia. The following is the greater portion of Dr. Grandy's article:

"The true story of the first discovery of anæsthesia and of the circumstances connected therewith has not yet been told in print. Reliable history is never written by the generation which makes it. The generation which inaugurated the era of painless surgery has passed away; the participants in the long and bitter controversy over the question of priority have disappeared; and those of us who have since come upon the scene may now undertake to gather up the data relating to that great discovery, unaffected by favor and unbiassed by prejudice.

"The claims of Dr. Long to the honor of this discovery have been presented to the world by no less a champion than the distinguished J. Marion Sims himself. Dr. Sims's article appeared in the *Virginia Medical Monthly*, May, 1877; but it was hurriedly prepared on the eve of the author's departure for Europe, after an imperfect correspondence with Dr. Long and others, and contains some errors which the latter was anxious to have corrected. Upon these errors the claim has been raised that to another belongs a large part of the credit which the profession has accorded to Dr. Long.

"My own interest in this matter is due to an accident, which need not be related here. For the purposes of this paper I have been kindly furnished by the Long family with all the documents, correspondence, and certificates which had been gathered by Dr. Long in support of his claim to priority. I have had access to papers which Dr. Sims never saw. I have talked with some persons, and corresponded with others, who were personally acquainted with Long and his work in 1842, and am thus able to present some features of the case hitherto unpublished.

"The paper of Dr. Sims had its origin in an interview with Dr. P. A. Wilhite, of Anderson, S. C., October, 1876. Dr. Wilhite was witnessing one of Dr. Sims's operations in New York, and remarked that he 'assisted at the first operation ever performed under the influence of ether.' He then said that this operation was done by Dr. C. W. Long, of Jefferson, Ga., in March, 1842, while the patient was completely anesthetized with sulphuric ether. He 'presumed that he (Wilhite) was the first person who ever profoundly etherized any one,' and then related how he had playfully and unintentionally etherized a negro boy to the point of complete anæsthesia in the fall of 1839, near Athens, Ga. Sims's article makes it appear that four young men—Wilhite, Groves, and two Longs (relatives of Dr. Long)—were medical students in the office of Dr. Long prior to the events of 1842, and the author states that Wilhite's

story about the negro boy encouraged Long in his belief that ether might be used for surgical purposes. These statements of Sims's, based entirely upon information received from Wilhite himself, have caused the friends of the latter to magnify his relation with this matter, and even to enter a claim in his behalf.*

"As a matter of fact, Wilhite did not become a student of Dr. Long in his office until the latter had done several operations under ether. After graduating at the University of Pennsylvania, in 1839, Dr. Long spent one year in New York city, and returned to Jefferson, Ga., to practice medicine in the summer of 1840. It is not likely that he would have attracted four students to his office at the age of twenty-five. He had no students under him until after his marriage, August, 1842, and the first was his cousin, D. J. Long. In another place in Sims's paper Wilhite is made to say that he assisted Dr. Long in operations 'under the influence of ether in 1843 and 1844, while he was a student in Dr. Long's office.' Wilhite was not even present at Dr. Long's first operations. In the entire volume of papers before me relating to Long's first two or three operations, including the sworn statements of parties who were actually present, no mention is anywhere made of Wilhite. Moreover not until years afterward does it seem to have occurred to Wilhite himself that he had any connection whatever with the discovery of anæsthesia. When Dr. Long's case was being argued before Congress, he obtained from Wilhite a certificate (February 4, 1854) with these words: 'I entered the office of Dr. C. W. Long, of Jefferson, Ga., in October, 1844, where I continued about eighteen months. Not long after I entered his office, and not later than 1845, I heard the said Dr. Long speak of having used sulphuric ether by inhalation, to prevent pain in surgical operations, he referring to a period of time before I entered his office.' The remainder of the certificate states that he (Wilhite) had heard others speak of the operations, and he was under the impression that he had himself talked with the first patient upon whom an operation had been done. Between this certificate and the story as related to Sims, twenty-three years later, there seems to be an irreconcilable conflict.

"Up to the time of Dr. Long's death the relations between himself and Dr. Wilhite appear to have been very friendly. In his interview with Dr. Sims, in 1876, Wilhite said that 'Long was the real and original discoverer of anæsthesia, and believed he would be so acknowledged if all the facts in the case were fully set forth.' When Sims was in correspondence with both of them during the preparation of his paper, Wilhite wrote Long:

"ANDERSON, S. C., January 16, 1877.

"Dr. C. W. Long:

"DEAR DOCTOR: I have just received a letter from Dr. J. Marion Sims, of New York, stating that you will not write to him, or at least that he wrote to you about three weeks ago and had received no reply. If you don't do so soon it will be too late. He has been preparing an article for publication, and wants to place you right before the world. You have been apprised, I suppose, of the nature of the article. Why you have been connected with, and will be the leading spirit in, the article happened in this way: While I was in New York last summer at one of Dr. Sims's private operations, several prominent physicians being present, I happened to remark that I witnessed the first or second operation ever performed under an anæsthetic. Every one said that I was mistaken, and particularly Dr. Sims. . . . After that I met Sims at his office and gave him such particulars as I could recollect of your first operation, and also

* See *Transactions of the South Carolina Medical Association*, April, 1883, and also *History of Surgery in South Carolina*, by Dr. E. F. Parker, *North Carolina Medical Journal*, June, 1893.

urged your claims to the priority. He at once wrote you on the subject, and has since become very much interested in the matter.

"Now, doctor, it is but justice to you, as it is due the world, that you give Dr. Sims such information as he asks for at once, as he is going to all this trouble only to place the proper credit of this great discovery on the man who justly deserves it. I earnestly hope you will comply with the doctor's request as soon as possible. . . . As I have been the means of giving the investigation of this subject its present shape, I am exceedingly anxious that you should give all the information you can, that you may, and justly too, receive the credit of this great discovery. If you will act, it will certainly be so. Dr. Sims also wants a short history of your life, which don't fail to give.

"Hoping to hear from you, I remain yours, etc.,

"P. A. WILHITE."

"In reply to this, Long reminded Wilhite that he did not witness the operations, as stated, and asked him to send Sims a certificate similar in character to the one above quoted. Dr. Wilhite replied:

"ANDERSON, S. C., January 27, 1877.

"Dr. C. W. Long:

"DEAR DOCTOR: Yours of the 22d is at hand, and I have also just received a letter from Dr. Sims, which I will answer to-day. In regard to the certificate you spoke about, it will not be necessary, I think, as Dr. Sims has my statement written out in full. He was very particular to get all the points and facts I could recollect. In my statement *I did make a mistake about my being present at the first or second operation, which mistake I will correct.* (Italics mine—L. B. G.)

"If you still think proper, I will send a certificate. Let me know and I will give you any assistance in this great matter.

Yours truly,

"P. A. WILHITE."

"Sims's article appeared in May, 1877, and Long at once noticed the errors and the absence of the promised corrections. He requested Sims to correct the mistakes, but the latter replied that the 'misplacement of a few names and dates would not alter the main facts in the case.' He sailed for Europe in a few days, and the matter was dropped.

"The above is sufficient to show, beyond the shadow of a doubt, that Dr. Long was the 'real and original' discoverer of the anæsthetic properties of ether, and that he could not have received any assistance or suggestions whatever from young Wilhite.

"It is not material to the strength of Dr. Long's case whether the negro boy incident ever happened or not. However, there is no evidence to show that he knew anything of it until nearly forty years after it is said to have occurred. I have lately had an interview with Miss Fannie Long, to whom Dr. Long had often told and retold the circumstances relating to his discovery. In his later years she became thoroughly familiar with every detail of her father's claim, and at his death he confided to her keeping all the documentary evidence in his case. She tells me that the above story was related to Dr. Long by Dr. Wilhite himself, in the presence of several of the family, when Wilhite was on a visit to her father's house in the spring of 1877. After hearing it, Dr. Long replied: 'Doctor, this is the first time I ever heard of it.'

"There is living near this city an old gentleman, who still preserves a clear recollection of the events of that period, and to him I am indebted for the following letter:

"EDGEWOOD, DE KALE COUNTY, GA., June 27, 1893.

"Dr. L. B. Grandy:

"DEAR DOCTOR: In response to your inquiries, I will state that I was intimately acquainted with Dr. C. W. Long, and was

frequently with him after he located in Jefferson, Ga., in the summer of 1840. He often administered the vapor of ether to us young men of the village for the exhilarating effect produced, and he told me that he became acquainted with this property of ether while a medical student in Philadelphia. Upon one occasion, in the fall of 1841, I think, he remarked to me that he thought ether could be used to prevent pain in surgical operations, and that he intended to make the trial at his earliest opportunity. I moved to Athens, January 20, 1842, and introduced the inhalation of ether among the young men in that place. Before this time the practice of thus taking ether was unknown in that section. At Dr. Long's request, I sent him some ether from Athens in the winter of 1842. Shortly afterward he came to Athens, and told me that he had operated successfully under the influence of the ether.

"These are the facts as I now remember them. Up to the time that I moved from Jefferson, Dr. Long did not have any students in his office. If ether had been employed in sport in the neighborhood of Athens previous to my introduction of it there, I never heard of it. In reaching the conclusion that ether might be used in surgery, I do not think Dr. Long received any outside assistance. In my opinion, the idea was original with him.

Yours very truly,

"R. H. GOODMAN."

"The circumstances which led to Dr. Long's first operation are thus described by himself, in a letter to Hon. D. L. Swain, LL. D., June 4, 1866: *

"In December, 1841, a company of young men were in my office, and requested me to prepare some nitrous-oxide gas for inhalation. I informed them that I did not have the necessary apparatus for making it, but that I had an article which would produce like exhilarating effects, and which I considered equally safe. They expressed a desire to inhale it, and it was administered that night to most of the company. They were so well pleased with the effects that it soon became fashionable to inhale the ether, and I noticed persons while under its influence receive injuries which were sufficient to produce pain, but on inquiring of them if they suffered any pain, they uniformly told me that they had not. I noticed one young man receive an injury of the ankle joint, which disabled him for several days, and he informed me that he did not feel the slightest pain until the effects of the ether had passed off. Observing these facts, I was led to believe that surgical operations might be performed without pain, and proposed to the gentleman on whom my first operation was done that if he would submit to the operation while etherized, I would charge nothing, or only a nominal fee, for operating."

"This operation was for the removal of a tumor from the neck of James M. Venable, March 30, 1842. A second tumor was removed from the same patient on June 6th following.† The last clause in the above letter will explain the following entry in Dr. Long's ledger:

"JAMES VENABLE.

"1842.

"Jan. 28th—Sulphuric ether.....	\$ 25
"March 30th—Ether and excising tumor...	2.00
"May 13th—Sulphuric ether.....	25
"June 6th—Excising tumor.....	2.00

* Dr. Swain was the uncle of Dr. Long's wife, and at the time of this letter was president of the University of North Carolina.

† These operations were done in the presence of James E. Hayes, A. T. Thurmond, W. H. Thurmond, E. S. Rawls, afterward a practicing physician, and perhaps others. Certificates of these gentlemen are before me, besides also those of Venable's family.—L. B. G.

"The details of that first operation under ether have been published by both Dr. Long and Dr. Sims. Concerning the subsequent operations not much need be said.

"On July 3, 1842, Dr. Long amputated the toe of a negro boy for disease.

"On September 9, 1843, he extirpated a tumor from the head of Mary Vincent, of Jackson, Ga.

"On January 8, 1845, he amputated two fingers of a negro boy. The certificates of two witnesses to this operation state that the first finger was removed under the anæsthetic, and that the boy experienced no pain; that the second was removed without ether and was very painful. It occurs to me that Dr. Long's conduct in this case proceeded either from the fear of keeping the patient under the anæsthetic too long, or from a desire to test the action of the ether. The latter view is made plausible from a statement of Long lower down.

"If Dr. Long had promptly made public the results of his work, American medicine would have been spared the most tragically interesting chapter in its history. But, under the circumstances, he pursued a course both natural and commendable, and his reasons, as given by himself, were entirely cogent. He knew that he was the first to make the discovery, and he anticipated no controversy. His operations had all been of a minor character, and he only waited for an opportunity to test his anæsthetic in capital surgery. But cases of heroic surgery were not common in those days in the practice of a young physician, in a thinly settled community, one hundred and thirty miles from the nearest railroad. As far as it went, his work was well known in the small sphere in which he moved. Before me are several certificates—three of them from physicians who were prominent in that section at that time—to the effect that 'Dr. Long's operations were public and notorious in and near Jefferson, Jackson County, in the year 1842'; that he 'made no attempt to conceal the character of the article inhaled, nor made any request that the results of his operations be kept secret.'

"Dr. Long's delay in going into print with his cases is thus explained by himself:*

"I was anxious, before making my publication, to try etherization in a sufficient number of cases to fully satisfy my mind that anesthesia was produced by the ether, and was not the effect of the imagination, or owing to any peculiar insusceptibility to pain in the persons experimented on. At the time I was experimenting with ether there were physicians high in authority and of justly distinguished character who were the advocates of mesmerism, and recommended the induction of the mesmeric state as adequate to prevent pain in surgical operations.† Notwithstanding thus sanctioned, I was an unbeliever in the science, and of the opinion that if the mesmeric state could be produced at all it was only in those of "strong imaginations and weak minds," and was to be ascribed solely to the workings of the patient's imagination. Entertaining this opinion, I was the more particular in my experiments in etherization.'

"In the meantime Wells and Jackson and Morton were at work. With some assistance from one another they arrived successively at the anæsthetic properties of nitrous-oxide gas and sulphuric ether; and Morton . . . secured a patent on ether

under the name of *Lætheon*. In the Massachusetts General Hospital, Boston, October 16, 1846, Morton administered his 'lætheon' to a patient for Dr. J. C. Warren, and a tumor of the neck was successfully removed. Other operations followed in quick succession by the hospital staff. They were described in the *Boston Medical and Surgical Journal*, November, 1846, by Dr. Henry J. Bigelow. October 27, 1846, Jackson and Morton published their letters patent, announcing the discovery of 'lætheon' as an anæsthetic; but their 'lætheon' was nothing more nor less than sulphuric ether.

"Now began the celebrated 'Ether Controversy,' which I will pass over rapidly. Wells claimed the honor for himself, but having failed, both at home and abroad, to receive the recognition he sought, he ended his life by suicide January 14, 1848.

"When Dr. Long saw that he was anticipated in the matter of publication, he began at once to collect the evidence in proof of his own work. He obtained the affidavits of those operated upon, with dates, the sworn statements of witnesses and of those who knew of the operations, and his first article appeared, with some of these certificates, in the *Southern Medical and Surgical Journal* (Augusta, Ga.), December, 1849.

"In 1852 a bill was introduced in Congress to purchase Morton's patent for \$100,000. This was opposed by Dr. Charles T. Jackson and the friends of Wells. Dr. Long's claims were also presented, and Sims says they were formidable enough to block the movements of Morton to get the appropriation. In 1854 Jackson made a visit to Long in Athens, and, having satisfied himself as to the latter's priority in the use of ether, proposed to him (Long) to lay their claims conjointly before Congress as the real discoverers of anesthesia. At the interview between them Judge Andrews, of Madison, Ga., was present by Dr. Long's request. Dr. Long declined all of Jackson's suggestions, and instructed Senator Dawson, of Georgia, to make no compromise, but to place his claims solely on their merits. The matter drifted along with true congressional slowness until it was finally lost in the preparations for war."

The Hygiene and Advantage of Illness.—The following article appeared in the *Hospital* for September 23d:

"Sickness has been treated under many aspects, and it possesses an interest all its own. We propose to deal with it from the hygienic and moral standpoint. It is natural for the hale man or woman to regard illness with horror. Many fortunate people live so many years without ever being really ill that their sympathies with suffering become deadened, and may even cease to exist. We well remember an experience of this kind, which will come home, no doubt, to some readers. For many years it was our lot to spend the greater portion of each day in a hospital, surrounded by disease and suffering of all kinds. Providence mercifully ordains that those who have to be constantly with sick people grow to regard them from the point of view of how best to promote their comfort and recovery. This becomes an absorbing interest, and so the habitual attendant gradually loses all feeling of repulsion and dread. A casual visitor to a hospital ward is appalled by the evidences of suffering and sickness which surround him. Cases are recorded, and have indeed happened within our experience, where visitors can not bring themselves to remain in a ward, and have perforce to leave it, or they suffer from collapse. It must not, however, be supposed that the casual visitor has necessarily more sympathy with suffering than the habitual attendant. Indeed, it may be quite the contrary, the two effects being accounted for by the fact that the attendant is under self-discipline, while the visitor is not.

* Extract from an unpublished (?) paper read before the Medical Society of Georgia, April, 1853.

† Dr. Long here refers probably to Dr. Gibbs, of South Carolina, who at that time was especially prominent among the class of physicians above alluded to. He and others claimed to have "witnessed operations on patients mesmerized, and declared that mesmerism was the *ne plus ultra* needed to kill pain in surgical operations."—L. B. G.

"In our own case this discipline and the volume of work which had to be regularly mastered in the hospital pushed the sufferings of the patients into the background. We were unaware of the fact at the time, but a severe attack of illness forced it upon our attention. As we lay in the hospital suffering and helpless we began to realize something of the measure of the misery of the many thousands who had found it a house of recovery. This led to a keener appreciation of the privileges of being permitted to minister to the needs of helpless and suffering humanity. Our own illness thus became an education in itself, and led to results so beneficial as to fill the heart with gratitude and joy. Here then is one aspect of illness which all should strive to realize and profit by. Martial has truly said that life is not to live but to be well. We are, however, convinced that there is, after all, a privilege in being ill, which the most hale and robust may well envy the sick. Experience is a hard master, but his lessons possess a value more than commensurate with the pains he inflicts. Thus illness may make a hard man tender, a violent man patient, and a selfish man considerate for the feelings of others, for the rest of his life.

"We have thus far dealt with some of the moral aspects of sickness. What then of its hygiene? It may be argued that illness can not be hygienic; is this so? Who is there that has watched a splendid yacht traveling at great speed under full sail, and noted the moment when the squall struck it with such violence that it lay crippled on the face of the waters, and has not felt a pang of poignant grief? In the same way a man or woman may have been pointed out as the embodiment of splendid health, and in all respects a magnificent type of humanity. Suddenly an accident happens, and in a moment, like the yacht, the perfect human creature falls crippled and helpless. In such an instance we have a case where the hygiene of illness may be studied with advantage. The shock of the accident is keenly felt, and often as keenly resented. The life of the patient may hang in the balance, the injuries may prove permanent in character, and yet the victim may benefit much. The enforced idleness, the endurance of suffering, the restraints of sickness, and the prolonged rest, may build up and restore parts of the organism which were becoming overstrained, and so extend life and promote powers of useful work. In this way the hygienic influence of illness becomes a reality, and its value can not be questioned.

"The devil was sick, the devil a monk would be; the devil got well, the devil a monk was he.' So, too, hale people who have never known a day's illness in their lives, often consider good health as an added virtue in their own case. The less fortunate who suffer from illness are regarded as foolish or stupid, or at least as in some way lacking virtue. Good health may breed intolerance, inconsiderateness, or a selfish self-glorification. Now, it is a good thing to be healthy, but illness may bring blessings in its train. To be really ill is to produce thoughtfulness in the most ordinary of mortals. With thought comes a fairer sense of the proportion which health bears to individual merit. It teaches the value of kindness and skillful nursing, the power of ministering to others, the curse of selfishness, and the joy of doing something to leave the world a little better than we found it. There is then the mental and moral hygiene of illness which can do more to prevent the suicidal glorification of selfish souls than ordinary hygiene can do for people's bodies. Let us, therefore, give illness its due place. It may prove in its course unpleasant, painful, interfering, and hard to put up with, but against all this illness, when accepted in the proper spirit, can not fail to water barren soil, to destroy the spirit of self, to open the eyes to a higher and nobler philosophy, and to cut the patient off forever from paths which

lead to destruction. So illness rightly understood should, in most if not in every instance, prove a cause for thankfulness. There is also the joy of illness. Who that has ever been a convalescent—that is to say, a patient who, after much suffering, has reached the stage where disease has ceased and health has to be restored—and will not heartily admit the joys of illness? What more happy state can life provide than one where the invalid becomes conscious once more of the beauties of Nature, of the flowers, the sunshine, the fresh air, and the busy hum of life? Each day as strength increases and illness retreats into the background we become more and more joyous. Friends are once more beside us, books can again charm, every day brings more and more pleasures of life within our reach, and so promotes a feeling of joy altogether innocent, and yet the completest of all the joys we have ever experienced.

"There is a further joy, too! We can see as we write a dear friend, long since dead, who was brought by illness out of the darkness and misery of absolute worldliness into the glorious fullness of the joy of heaven. For months the dire suffering and agony of that illness were resented with bitter repining, but gradually the good seed took root, and the latter weeks were marked by a joyous recognition of the blessings which God in his mercy had brought to the sufferer through the dark shadows of a terrible illness. Yes, illness may prove a fruitful source of joy. The man or woman who leaves selfishness behind, when recovery takes place, the thoughtless person who re-enters the world of health as a man with a mind, and the poor sufferer who dies happy because a merciful Providence has conducted him out of the world along the pathway of sickness, are all proofs of the benefits which illness may bring in its train. We hope that what we have written, incomplete or imperfect though it be, may bring comfort and conviction to some minds, at any rate, who have heretofore been taught to regard illness as an unmixed evil, instead of a blessing in disguise."

The Diagnosis between Roetheln and Scarlet Fever.—

Attention has lately been called to the great good that would be likely to result from teaching the diagnosis of the acute infectious diseases clinically in special hospitals. In the *Lancet* for September 23d Dr. F. P. Atkinson says:

"The correct diagnosis between roetheln and scarlet fever is often a matter of very great importance and it is also one of extreme difficulty. When one refers to the various authorities on the subject the most conflicting opinions are to be met with. One says that the rash is like scarlet fever, another that it is like measles; one that it comes out with the fever, another that it appears two or three days after its commencement; one that it is ushered in with coryza, another that there is no coryza; and one that there is little or no desquamation, another that there is extensive peeling even of the hands and feet. With such diversity of opinion, how can the medical practitioner be expected to arrive at a correct diagnosis of these cases? One thing, I think, is certain, and that is that one must not rely either on the appearance of the rash or on desquamation; but there are two symptoms, nevertheless, which are well marked in nearly every case—viz., the initial fever is very short and the glandulæ concatenatæ are distinctly enlarged. It is more easy, of course, to detect the real nature of an epidemic when it occurs among a number of persons who are associated together in one dwelling than when they are scattered about in various localities, though at first, perhaps, even here the diagnosis may be somewhat doubtful. On June 7th of the present year I was called to see a boy aged twelve years at school, who had a somewhat dark, scarlatinal-looking rash on the neck and chest, a slightly ulcerated throat, and enlargement of the glan-

dulæ concatenatæ. The temperature was a little over 100° F. On the third day he was perfectly well in every respect, consequently the case appeared to me to be one of röteln. By way of precaution, he was ordered to be kept in quarantine for two weeks, to have an antiseptic bath at the end of that time, and to be dressed in perfectly fresh clothes before being allowed to mix with the other boys. Unfortunately, one important direction was omitted—viz., that he should be properly inspected at the end of the isolation period, and this, I hope, I shall not forget should another like occasion arise. On June 14th—i. e., seven days after the appearance of the first case—another boy sickened, but as he appeared to be only slightly ill the schoolmistress did not think it to be necessary to call in any medical man, but kept him isolated in the same way and for the same time as had been done in the first case. On July 2d one of the day scholars was attacked and in consequence was kept at home. The two medical men (partners) who saw him were for some time in doubt as to the nature of the illness, but subsequently they notified it as scarlet fever. The medical officer of health upon receiving this notification, and having heard that some of the other boys in the school had rashes, inspected all the remaining scholars on July 7th, and he found that the two boys who had been first attacked were peeling about the hands and that there were two others with a rash upon the neck, chest, and arms. All of these cases he considered to be scarlet fever, and immediately wrote to the parents of the boys (both boarders and day scholars) advising them to remove their children within twenty-four hours and offering to see to the disinfection of the clothing if they so desired. In addition to this, he called attention, as it were, to what was in the first instance, according to his opinion, an error in diagnosis, and thus, thoughtlessly no doubt, ran a risk of imperiling the friendship which generally exists between members of the medical profession. His suggestion of stopping the attendance of the day scholars was a sound one, as the homes of these boys were not likely to be subject to greater risks than they were before; but as regards the boarders it appeared to me that the case was different, as it was impossible to know how many more might at the time be infected, and if after removal other cases should arise, fresh foci would be developed and the disease might under certain circumstances assume much larger proportions. Had the house been sanitarily imperfect, and had fresh cases been breaking out daily, it might have been necessary to remove the pupils at once. On July 9th another boy fell ill, and also one on the 19th, one on the 21st, two on the 22d, and one on the 28th. I distinctly declined to notify the last three as suffering from scarlet fever, and I gave my reasons for so doing. Of twenty-two boarders, ten were attacked, and of the nine day scholars only one suffered. None of the mistresses, masters, and servants—eleven in number—were affected. In every one of the boys the rash showed itself on the first day of the illness about the neck and chest. In one case a second measly-looking rash appeared on the second day of the illness on the back. There was no distinct coryza in any single instance, but in two cases the eyes were suffused and watery. The tongue in all the cases appeared to be normal. The first boy who was attacked had a slightly ulcerated sore throat, but the others only complained of a little roughness and irritation. The lymphatic glands of the neck were in each instance more or less enlarged and remained so even after convalescence was established. The submaxillary glands were in no instance affected. In no case was the temperature above the normal on the fourth day; in two, however (the result probably of the very swollen and tender condition of one of the lymphatic glands), it rose again—in one on the fifth day and in the other on the eighth day; but permanently assumed the normal in

about a week—as soon, in fact, as the bowels, which had been previously constipated, became freely relieved. In one case there was no rise of temperature at all, and as a specimen of what it was in the others I will give three examples as follows: 1. July 19th—evening, 99.8° F. 20th—morning, 98.8°; evening, 98.8°. 21st—morning, 98.4°; evening, 98.4°. 2. July 22d—evening, 100°. 23d—morning, 98.6°; evening, 100°. 24th—morning, 98.4°; evening, 98.8°. 25th—morning, 98.4°; evening, 98.4°. 3. July 22d—evening, 99°. 23d—morning, 98°; evening, 98.6°. 24th—morning, 98.2°; evening, 98.6°. 25th—morning, 98.4°; evening, 98.4°. In no single instance was there any kidney complication, though the first boy bathed twice and the second once in the Thames while they were peeling. The extent and character of the desquamation varied greatly. In two cases the skin came off in large flakes from the abdomen, while there was slight scaling on the neck, hands, and feet. In another case there was only slight scurfiness, and this was to be seen about the groins, knees, and hands only. In yet another case there was slight peeling on the soles of the feet first, and on the neck, chest, and hands afterward. Most of the others had slight peeling of the hands and feet, but scarcely any of the body. The great difficulty in the early part of the illness was to keep the boys in bed and satisfy them with food. On July 22d I called in one of the medical men who had attended the only day scholar attacked to see the two boys who had sickened on that day, and after examining these and the convalescents he said that he felt inclined to alter the opinion he had previously formed.

"As regards the diagnosis of cases of this character, I think that besides the early subsidence of the initial fever and the enlargement of the glandulæ concatenatæ, the periods of incubation and infectivity will give some assistance. The report of the Clinical Society on this subject says, with regard to röteln, that the twelfth to the eighteenth day after the cessation of exposure is the time at which the rash is most likely to appear in epidemics in schools when a patient is isolated as soon as the rash appears. In a few cases the incubation period is only eight or nine days, and in a small number it may be only five or six days. The quarantine period must not be less than twenty-three days. As regards infectivity, the patient is infectious two or three days before the rash appears and while it is out; but it diminishes rapidly and altogether ceases in a week in mild cases, and in the more severe when desquamation is over. In the former class isolation for a week, to be followed by a bath and disinfection of clothes, is recommended, while in the latter it is advisable for isolation to be continued for two weeks, to be followed by disinfection, in order to prevent the spread of the disease in schools. The infection does not appear to be long retained by clothes. With respect to scarlet fever, the report remarks that the incubation period lasts usually between twenty-four and seventy-two hours; occasionally it is less than twenty-four hours. It is very doubtful whether it ever extends to eight days. When infection is conveyed by milk the period would seem to be two days or less. The infection period lasts from the onset of the symptoms until desquamation is complete and may still exist for eight weeks after the commencement of the disease. It is readily preserved and conveyed by fomites. A person who has been exposed to the infection of scarlet fever may, after disinfection of the clothes and other fomites, be pronounced to be safe if at the end of seven days he is free from fever and sore throat. It has been suggested that every medical man should study infectious diseases at the fever hospitals: but such cases as röteln, being so short in duration, would be rarely seen, and it seems to me that here the necessity of some sort of apprenticeship system clearly shows itself."

Original Communications.

TYPES OF GASTRO-INTESTINAL DISEASE PREVALENT IN NEW YORK.*

By FLOYD M. CRANDALL, M. D.

No region or country is exempt from the gastro-intestinal diseases of young children. In rural districts, where breast feeding is the rule, or where artificial food is obtained fresh and pure, they are at a minimum. In the crowded centers of population where the people are herded together in most unhygienic surroundings; where weak and puny children are born by the thousand in homes of poverty and vice; where artificial feeding is common; where milk is contaminated and many hours old when first received, they reach their maximum. In New York over thirty thousand young children have died of diarrhæal diseases during the last decade. From June to October the dispensaries are crowded with these little patients. The physician who practices among the well-to-do sees less of these disorders, for his families flee from the city and its dangers during the hot weather. But no general practitioner who remains in town escapes them entirely.

It is not my purpose to discuss the aetiology of the gastro-intestinal diseases, but rather to study their prevailing types as they present themselves in New York. The character and type of diarrhœa is modified by three factors—climate or season, social conditions, and food. It is not now the common belief that heat *per se* causes diarrhœa. That it is a powerful factor indirectly is undoubted, for it lowers the vitality of the patient, and favors fermentative changes in milk and the growth of pathogenic germs. Digestive disorders occur during every month of the year, but they do not become prevalent or very serious until June. There is occasionally considerable hot weather in May, but diarrhœa does not prevail to a serious degree. It frequently happens that no case appears in the large dispensaries before the 10th of June. The first case seen at the Polyclinic developed one season on June 10th, the next season on June 7th, while this year the first case did not appear until June 19th. Serious development of the disease does not as a rule occur before June 20th. It is most prevalent during the first ten days of July, the numbers being but slightly diminished during the next ten days. After July 20th the number of new cases decidedly diminishes. During the six weeks between July 20th and September 1st the development of new cases is remarkably uniform, being less than half that of early July, although the difference of the average temperature of these periods is but one or two degrees. During the first half of September the number of new cases is remarkably diminished, but during the latter half of the month there is a decided increase. The accompanying chart shows the date of onset of diarrhœa from June to November.

It would be an error to conclude that these variations were due to heat alone. Observations have abundantly proved that when the mean temperature has reached a certain point (about 60° F.) an increase of temperature is not



of necessity followed by an increase of the gastro-intestinal diseases. Numerous factors contribute to the results shown by the chart. One of the most important, it seems to me, is the fact that large numbers of feeble, marasmic babies are ready to succumb as soon as the hot weather produces the conditions favorable to the development of diarrhœa. It is simply the working of the law of natural selection. The unfit are the first to perish. It must not be supposed that the chart shows the actual number of patients under treatment at any one time. Many children who sicken in July continue ill in August. The actual number of children under treatment in August is greater than would be indicated by the chart.

The chart is especially interesting in our present study as it maps out very clearly marked changes in the type of disease. During June and early July the prevailing types are those of acute dyspeptic diarrhœa. In grouping these cases I use Dr. Holt's classification in Keating's *Cyclopædia*. In recording the histories careful observations were made of the character of the stools and their exact number. Until July 20th, twenty or even more stools in twenty-four hours are common. After that date it is rare to find that number. Serous diarrhœa marked by numerous profuse, thin, watery passages is common in June and July. In August the prevailing disease is marked by thicker grumous stools much less frequent in number. Acute dyspeptic diarrhœa prevails in July, enterocolitis in August, but in August even dyspeptic diarrhœa shows less tendency to assume a serous type than it does in July.

Early in September diarrhœa markedly decreases, but later in the month there is a decided increase. There is now a third and very radical change in type. The prevailing disease is the so-called dysentery. I am well aware that the term dysentery is not, from a pathological standpoint, proper. The term dysenteric diarrhœa expresses, however, the type of the prevailing disease. The passages

* Read before the Section in Diseases of Children of the First Pan-American Medical Congress.

are very frequent and small. They consist chiefly of thick mucus and blood and are accompanied by true tenesmus, high fever being present as a rule. These cases are frequently found grouped in certain tenement houses or in certain streets, and are apparently due to some contagious influences. A chart for 1889 would show the September rise far more marked than the one before you. Observation during the past four summers confirms the view, which I expressed in a paper read in 1890, that there are three quite distinct periods. The first begins about the middle of June and terminates about the middle of July, in which diarrhœa is more prevalent than at any other time, the serous type being common. The second extends from the last of July to the middle of September, during which comparatively few cases develop. The number of cases under treatment, however, is large, for entero-colitis is common, dating back in many instances to a dyspeptic diarrhœa in July. The third period occurs during the latter part of September, in which the cases are largely of a dysenteric type.

I have been unable to demonstrate that age has any material effect upon the type of disease. The statement that very young children are especially prone to serous diarrhœa has not been borne out. Of patients suffering from dysenteric diarrhœa, over eighty per cent. were under fourteen months. That form of disease seems prevalent chiefly among infants and children of ten or twelve years. As an ætiological factor, age is very important. I showed in the paper referred to that in three thousand cases occurring in New York 84·1 per cent. of the patients were under two years of age, and 53·2 per cent. were between six months and eighteen months.

The following observations were made upon five hundred and forty-one patients during the four years beginning with 1889. A history of disordered digestion preceding the diarrhœa—as slight diarrhœa, constipation, or indigestion—was obtained with certainty in forty-one per cent. of the dyspeptic cases. In a very large number of cases the previous condition could not be ascertained with certainty. Entero-colitis was almost invariably preceded by diarrhœa more or less continuous for a period ranging from a few days to several weeks. Well-defined entero-colitis developed with extreme rarity in perfectly healthy children.

The onset was sudden in seventy-two per cent. of the dyspeptic cases. It was frequently so definite that the mother could state the day and hour at which the first symptom appeared. In the remaining cases the onset was gradual or uncertain. In entero-colitis the exact date of onset or transition from dyspeptic diarrhœa could be determined in but twenty per cent. of the cases. The onset of well marked dysenteric diarrhœa was sudden and definite in over ninety per cent.

A curious fact was developed in this connection in studying the cases of two years. The interval between the onset of the diarrhœa and the first visit to the physician was found to be in June, 4·3 days; in July, 3·8 days; in August, 2·9 days. Hence, in August the child was brought for treatment almost a day and a half earlier than in June.

This is perhaps explained upon the ground that mothers did not appreciate the dangers of diarrhœa in June. In August, warned by personal experience or that of their friends, they seek medical aid earlier.

The number of passages per day was noted in four hundred and thirty-eight cases. In dyspeptic diarrhœa they varied from two or three per day to twenty, thirty, or more, the common range being from six to fifteen. In entero-colitis the extremes were about the same, but the usual number was more constant, ranging from eight to twelve. In dysenteric diarrhœa the extremes were from eight to forty, the average number being large—twelve to twenty. Within certain limits the number of passages is not a criterion of the seriousness of the disease. Some of the most serious and fatal cases which confront us are those in which the passages are large but not watery, of excessively offensive odor, and occur only at intervals of several hours. There may be but two or three in a day. They show a tendency to group themselves. An interval of five or six hours, or even longer, will pass with no passage. Then three or four will occur in quick succession, to be followed by another long interval without passages. The temperature in these cases ranges high and the constitutional disturbance is profound. The natural tendency is to terminate in death by toxemia. This type is not uncommon in New York. It illustrates very forcibly the fact that diarrhœa is, strictly speaking, a symptom, not a disease. Here we have excessive decomposition of the intestinal contents with grave constitutional disturbance, with very slight diarrhœa. The physician whose sole object in the treatment of these disorders is to check diarrhœa would lose cases of this character. The diarrhœa is a conservative process and is to be encouraged.

Allied to these cases are those in which the symptom of diarrhœa appears late. The child is fretful, restless, and apparently ill, with more or less fever. The condition continues for several hours—sometimes twelve hours or more—the bowels being constipated. When at last they do act, either naturally or as the result of a cathartic, the physician suddenly finds that he has a fully developed dyspeptic diarrhœa to deal with. The temperature is sometimes very high and the diagnosis is uncertain until large grumous, foul-smelling passages indicate the nature of the disease. The temperature usually falls when the bowels act, but, as a rule, unless active measures are taken, recovery does not occur.

Diarrhœa of the serous type is common early in the season, as we have already seen. It is not, however, true cholera infantum. It seems to me unwise to apply that term to ordinary summer diarrhœa. Cholera is a disease characterized by certain peculiar symptoms, and the term cholera infantum should be restricted to a well-marked but rather rare type of disease simulating cholera. I have seen in New York but five or six well-marked and typical cases of this class. In the western part of the State of New York it is somewhat more common than in the city. I would restrict the term to a disease which appears suddenly and is marked by frequent and profuse watery passages, which quickly drain the fluids from the body and reduce a

strong child in a few hours to a state of extreme danger. The temperature ranges high. Constitutional disturbance is profound. Prostration is alarming. The whole aspect of these cases, as I have seen them, is entirely different from that of ordinary dyspeptic diarrhœa, even when the stools are large and serous in character.

The color of the passages varied from the clear watery colorless stools of cholera infantum, and yellowish watery serous passages to yellow, green, brown, and black. Green, more or less decided, appeared at some period in seventy-one per cent. of all the cases.

Blood was present in the passages at some period in twenty-nine per cent. of the inflammatory cases not including the dysenteric, but was rarely profuse. It appeared in at least thirteen per cent. of two hundred and seventy-four dyspeptic cases, usually at the outset, and was several times profuse. The idea that blood is a symptom of inflammation, or of lesions, has no foundation in fact. In several instances the blood appeared in the first passage, but soon ceased, and the patient recovered without any symptoms of inflammation.

Vomiting was present in sixty-three per cent. of the dyspeptic cases. It usually occurred early and frequently disappeared after the first day or two, but was often persistent. It was more common in cases marked by watery passages and not infrequently preceded the diarrhœa. Vomiting appeared in forty-three per cent. of the inflammatory cases. It was not often persistent or continuous, nor as troublesome as in the preceding type.

Pain is a somewhat uncertain symptom in young children. In dyspeptic diarrhœa it was sometimes abdominal and gripping, but more commonly seemed to be of a bearing-down or straining character. There was frequently abdominal tenderness, but this was by no means a constant symptom. Pain was evidently present to a greater or less degree in most of the inflammatory cases. It was commonly of a bearing-down nature, and was sometimes a true tenesmus, accompanied not infrequently by a partial or complete prolapse of the rectum. Abdominal tenderness was, as a rule, present, usually in the umbilical or right iliac region, but distention or tension of the abdomen was not constant.

Temperature records in dispensary cases are necessarily imperfect. In seventy-two per cent. of the dyspeptic cases there was a history of fever or feverishness usually at the outset. Only twenty-one per cent. of the whole number of patients, however, showed a temperature of more than 100° at their first visit. It was frequently normal. In the septic type already described—marked by infrequent, offensive passages—the temperature, ranged high throughout, occasionally reaching 105° or 106° in fatal cases. Inflammatory diarrhœa was almost invariably marked by some elevation of temperature ranging usually from 99.5° to 103° . Except in cases of a dysenteric type, it was rarely very high. A slight, somewhat intermitting, but persistent temperature was the rule in entero-colitis.

From these studies we are able to present the following general description of the gastro-intestinal diseases common to young children in New York. The dyspeptic form

is commonly preceded by a disordered state of digestion. The onset may be gradual, but is usually definite and often sudden. Fever is generally present in the early stages, but thereafter is not constant. Two general forms are common, but are not sufficiently distinct to be classed as different varieties. One is characterized by watery, brownish, greenish, or light-colored passages occurring from ten to twenty or more times a day, accompanied frequently by vomiting, which is sometimes persistent. This is the so-called serous or choleraic diarrhœa. Classical cholera infantum is a rare disease. The other class, much more common, is characterized by semisolid passages, composed of fecal matter, white curdy masses or undigested food, mingled with serum, mucus, or blood, and of a variable color, but more often green. Fever, pain, and vomiting are frequent. The first form is rarely well defined, but usually originates from the second or merges into it, the same patient presenting at different times symptoms referable to each.

Enterocolitis, as a rule, develops gradually from a dyspeptic diarrhœa. The passages are usually green and frequently contain blood, mucus, and pus. Pain and abdominal tenderness are commonly present and not infrequently true tenesmus. Vomiting is common but not persistent. Fever to a slight degree is invariably present, but, being in some instances intermittent, single thermometric observations may fail to detect it. The course of the disease is extremely variable.

113 WEST NINETY-FIFTH STREET.

RECUMBENCY IN THE TREATMENT OF POTT'S DISEASE.*

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THE collapse of a cavity resulting from disintegration of bone and fibrocartilage is not the only local element of the spinal deformity of Pott's disease. During the process of destruction the bone for some distance around that which breaks down becomes greatly softened. This change is not to be regarded as merely a part of the destructive process, but, as a great degree of protection against mechanical violence is thus afforded, it has a positive conservative value. The protection thus gained, however, is liable to be at the expense of change in shape of the softened bone itself, and it is this also, and not the bone destruction alone, which produces the deformity. In those cases which have no very acute symptoms, such as pain, night cries, marked spasm, fever, or impairment of general condition, but with a prolonged tendency to progressive deformity more rounded than angular, it is probably the predominating factor.

It has been shown that after removal of a tuberculous focus from the bones entering into the knee joint the sur-

* Read before the Section in Surgery of the First Pan-American Medical Congress.

rounding cancellous tissue remains for some months in a pliable state, so that without renewal of the osteitis it may bend and permit flexion of the limb; that this is corrigible by mechanical means, and that the bone ultimately becomes permanently hard.* The same conditions obtain in disease of the cancellous tissue of the spine, and after the destructive process has expended its energy the deformity may still be easily increased, but it is to a great extent controllable. Given a soft segment in the vertebral column, the kyphos is the mechanical result of weight and muscular action exerted in one or more of the following ways: First, as longitudinal pressure, by which the part is squeezed out; second, as anterior leverage, by which it is bent out; third, as direct backward pressure, such as intra-abdominal or intra-thoracic tension, or, in case of a patient supine upon a yielding surface, visceral weight, pushing out a weak portion of the parietes. It is of importance that these deforming forces be kept clearly in mind in order that counteracting force may be intelligently applied. Sudden, intermittent pressure, such as is produced by jars or twists, affects more particularly the destructive process, while long-continued pressure produces more effect in changing the shape of the surrounding bone. The same force may be destructive or passively deforming according as the active or passive condition of the parts predominates. Cicatricial contraction also plays an important rôle. Although conspicuous as a distorting factor in disease of joints other than spinal, its existence in this connection seems to have been generally ignored. An amount of cicatrization sufficient for the firm binding together of the parts adjacent to the bony defect is conservative, and it is fortunately improbable that any force which we can bring to bear can overcome it. But here, as elsewhere, inadequate protection in the acute stage may permit such a degree of disease intensity as will result in the formation of an unnecessarily large amount of scar tissue. This in contracting increases the deformity.

It is evident that inhibition of the destructive process is the most efficient preventive of the deformity, but as the latter is not necessarily proportionate to the former, and as the displacement of parts is traumatic in its effects, the deformity is treated not only for itself, but because it has a marked influence upon the causative destruction and upon the general health of the patient. In any stage of the disease the mechanical treatment consists in protection from traumatism, intrinsic and extrinsic, and antagonism of the deforming forces enumerated. But while no sharp distinction in kind is to be made between the therapeutics of the disease and that of the deformity, there is a very great difference between the degree of protection and of mechanical prophylaxis that is necessary for a spine in which progressive caries is in operation or very great softening exists, and that degree which will meet all the needs of one where, that process having ceased to operate, only a moderately weak place remains. Clinically, accurate determination is impossible and the treatment must be made

thorough enough for any possible state. The spondylitic spine when upright is unavoidably in performance of its functions as a support for weight and a base for muscular action. It is subject to a constant succession of traumatisms, accidental, those involved in the use of the limbs and thorax and those consequent upon misplaced muscular origins and insertions. The demand made by it upon any form of portative apparatus is therefore enormous. Such instruments have demonstrated a great degree of utility. Let us consider their limitations. Their action consists in support (principally antero-posterior) by leverage and in longitudinal traction. Unlike splints applied to a broken long bone or to a joint of a limb, where they act on long stiff levers, they have no direct grasp upon the seat of the disease nor upon the parts immediately adjacent thereto, but they include with the spine the moving thorax, the yielding abdomen with its heterogeneous and mobile contents, and to a limited degree the pelvis. And, in the acute stage, what force reaches the spine is expended not upon the bony defect or the seat of actual disintegration, but upon the soft mass surrounding it. This can not be pried straight while it is under the influence of pressure transmitted longitudinally through the spine. Antero-posterior support is also limited, in mid-dorsal disease, for instance, where the length of the spine above and below furnishes the best opportunity for leverage, by the amount of pressure which the skin over the kyphos will bear. In acute cases it frequently happens that this tolerance is not sufficient to permit a successful resistance to destructive and deforming force. As the back becomes sore the apparatus must be removed or modified to diminish pressure. This is but following up an increasing deformity, not successfully antagonizing it. In disease of the upper spine, where traction is the more essential element, similar limits are encountered. The immature pelvis of a child affords a poor base for traction. The skin covering the chin, back of the head, etc., will permit far less pressure than is involved in the weight of the head alone. Another indication of the inefficiency of portative apparatus is furnished by the convalescent spine. In the acute stage the area of reflex muscular spasm extends much beyond that of the disease. The extent of this rigidity is a pretty fair criterion of the intensity of the process. Frequently the whole spine is rigid, or may become so when the patient stands. In a case of dorsal disease a posterior brace fitted to a prone patient will either continue to fit when the patient stands or will cease to fit because he straightens his lumbar spine. But when the acuteness diminishes, the area of previous collateral rigidity becomes more flexible, and a brace now fitted to a prone patient does not follow the contour of the upright spine. The tendency of the healthy spine when vertical is to sag into curves, and the patient now lordoses away from the brace. Although some support had been afforded, it had not been sufficient to supplant reflex muscular spasm. It was the patient's muscles, to some extent at least, and not the brace, that had held him up. In some cases the patient has supported the brace more than the brace has supported the patient. These criticisms are applicable to any form of portative apparatus

* Deformity following Excision of the Knee. *Brooklyn Medical Journal*, February, 1892.

of whatever material constructed. Their use should be confined to the subacute or convalescent stage.

Recumbency as a therapeutic measure means mechanically more than simply putting a patient to bed. It implies protection from traumatism and retention of the whole spine in the best possible position, so that the relations of the separate parts remain unchanged or subject to those changes only which by the use of pressure and traction the surgeon may make. The prone posture is preferred by some surgeons, notably by E. Noble Smith, of London,* for the following reasons: 1. It removes the weight of the body from resting on the spine. 2. It restrains the action of the abdominal and other muscles in front of the spine so that the part of the body above the deformity is not bent forward. 3. It allows free use of the arms for feeding, play, etc., without causing the body to bend forward and press the diseased bones together. I have no experience with this posture, but, as compared with the supine, it would seem to be open, from a purely mechanical standpoint, to these objections: 1. It fails to afford the splintage which, in the supine position, the contact of the spine with the fixed surface of the couch affords. On the contrary, the anterior chest and abdominal walls being stationary, all the traumatisms of respiration and other thoracic or abdominal movements are effective on the vertebrae. 2. Deglutition, especially of liquids, and attention to the other needs of the body, must be much more difficult in the prone than in the supine position. 3. In cases where it is necessary to keep the head fixed in line with the trunk, the patient could not see what is going on, and confinement in this position would soon become very irksome. 4. Suppose the apex of the kyphos to be designated by a and a' , in the accompanying diagrams, the direction of gravity being indicated by the arrows. In the prone position (Fig. 1) such of the parts as underlie the kyphos are supported by the bed, and are themselves supporting the spine in its deformed position; there is nothing

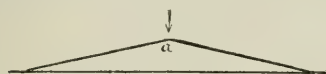


FIG. 1.

to prevent the soft bone from being thrust out. In the supine position (Fig. 2) the trunk rests, in part at least,

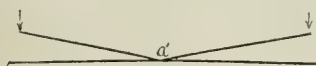


FIG. 2.

upon a' , and the weight of the spine above and below the kyphos, together with that of the superincumbent parts, is reforming in its tendency.

That this last consideration is not a mere matter of theory, the accompanying tracings (Fig. 3), taken from an old case of dorsal disease, will very strikingly show. The first (a) was made by means of the lead strip applied to

the spine while the patient was prone. When cut out of cardboard, the edge fitted the spine accurately. The second

(b) was thus obtained: Several thicknesses of plaster-of-Paris bandage were applied to the mid-line of the back and closely secured by a muslin bandage. The patient was placed in the supine position upon a firmly padded table and kept quiet until the plaster had become hard. The muslin bandage was then cut away, and the patient lifted carefully out of the cast. By means of the lead applied to

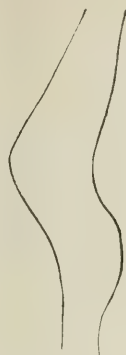
a
FIG. 3.

FIG. 4.

the impression the contour of the cast was obtained, cut out of cardboard, and tested. These tracings have been placed together for comparison. While the general straightening of the spine is in part due to compensatory lordoses above and below the kyphos, even this change is a very desirable one; for, as emphasized by Whitman,* spinal deformity derives its importance chiefly from the resulting misplacement of the head, shoulders, chest, etc. The lordoses must, moreover, exert some straightening force upon the kyphos. The patient could by no means have tolerated, in the upright position, a brace that would have produced such a change. In a similar case were determined in both positions the transverse outlines of the projection. Fig. 4 shows the comparison. The upper is the profile in the supine, the lower in the prone position. The greater forward inclination of the ribs in the latter position is serious because it effects a projection forward of their sternal ends, and thus causes the characteristic pigeon breast.

The thorough support of the spine is not possible if the patient lies upon a soft or yielding material or upon a canvas-covered frame placed upon a bed from which it is raised several times daily; for the contour of the spine is not the same when the frame is suspended as when it is on the bed. Although no pain may be caused by thus changing the relations of the inflamed or softened vertebrae, such change tends to produce reflex spasm and is not surgical. The supporting surface should be quite firm, and the whole spine should be comfortably fitted. When the posterior projections of the occiput and the buttocks are greater than that of the kyphos, a pad tightly stuffed with curled hair, cork shavings, hair felt, or similar firm elastic material, should be placed under the latter. The hollows of the cervical and lumbar regions should also be filled in. On the other hand, care should be taken that the kyphos does not bury itself in the bed so that the

* *The Surgery of Deformities*. E. Noble Smith. London, 1882, p. 218.

* *Transactions of the American Orthopaedic Association*, vol. 9, 1892.

pressure above and below, or upon the ribs at either side, is greater than at the apex. The backward projection of the diseased area should be at all times directly antagonized by as much force as is practicable. It is essential that this force be subject to accurate adjustment without exciting reflex muscular spasm by interrupting the general condition of rest. This adjustment is not possible when the patient lies upon a board or other surface where no access is had to the spine. It is then due to slight deformity and good fortune if he does not have to be repeatedly taken up and the padding modified to meet the changing contour or to relieve some part of too concentrated pressure. Comfort is an essential criterion, and the same rule that applies to almost any kind of orthopaedic instrument holds good here. When it is a source of pain or discomfort it is not only not doing good, but is probably doing harm. Bathing (not rubbing) the parts with alcohol and water, equal parts, and the application of talcum, Fuller's earth, or a similar drying powder, are very necessary when sores form or are imminent. A very little turning of the patient will suffice for this purpose, but even this should, by a careful adjustment of the pressure, be avoided as much as possible, and should always be done by two persons—one at the head and shoulders, the other at the pelvis—working together so as to keep the relations of the parts unchanged. This is particularly necessary in cervical disease. In these cases the patient will not usually try to turn his head or lift it up.

Traction is particularly efficacious in cervical or high dorsal disease, and usually may be applied by means of a head sling similar to that employed in the Sayre suspension apparatus (Fig. 5). To the rings of this is attached a stout cord, which passes over a pulley and is fastened to a weight. It is well to have several of these slings made of drilling

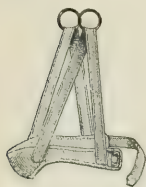


FIG. 5.

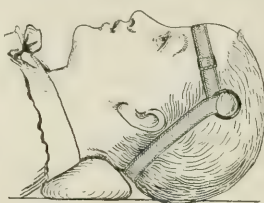


FIG. 6.

and lined with Canton flannel, or made altogether of the latter, and with straps of webbing instead of leather. They can be washed when soiled, and are more comfortable. Fig. 6 shows a form of headpiece which is easily made, and answers very well in cases when a light weight is to be used and the occipital projection is well developed; it has the merit of not interfering with the lower jaw. It consists simply of a piece of webbing an inch wide, a buckle, and two inch-and-a-quarter iron harness rings. So long as the weight is pulling, the web has a good hold. After the ring has adjusted itself, the two layers of webbing are to be stitched together where they cross. I sometimes add a strap to pass from ring to ring under the chin. It can be removed, so that the patient may eat, without en-

tirely intermitting the traction. As compared with the other headpiece, this one has the disadvantage that the patient can slip it off when the nurse is not looking. When the case is acute, however, he is not likely to do so. The feet are placed from an inch and a half to four inches lower than the head, so that the greater mass of the trunk and lower extremities affords a good base for countertraction. The amount of weight is to be regulated by the patient's feelings. From half a pound to four pounds, in case of a young child, is sufficient to counteract muscular spasm and render him comfortable. In the middle and lower dorsal disease, traction is not so efficient. The patient should be nearly or quite horizontal, because the amount of pressure involved in drawing the upper segment of the trunk up hill is greater than the chin and scalp will long stand. In these cases, if attempt at much traction is made, the pelvis should be secured by adhesive plaster applied to both lower extremities, as for hip disease, or by the belt shown in Fig. 7. This is made of canvas or drilling, and padded where it lies on the crest of the pelvis. It is laced on and buckled to straps passing to the foot of the bed, and also to those around the side bar of the stretcher frame. But, as stated,

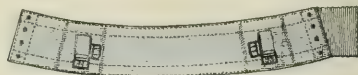


FIG. 7.

the undeveloped pelvis of a child offers a very poor hold for traction. The belt is of more service in securing the pelvis so that the patient can not turn over. While the amount of weight should be all that the patient can tolerate, it is evident that the leverage illustrated in Fig. 2 is a more powerful agent than traction in these most formidable cases. In lumbar disease the head should be placed a little lower than the feet. The pelvis is to be fixed as before, and the extending force consists of the head and thorax with as much additional weight as is comfortable. When psoas contraction exists, an adjustable inclined plane is used, with traction on the flexed limb.

At the annual meeting of the American Orthopaedic Association held in New York, in September, 1892, I presented an orthopaedic couch which seemed to be all that was necessary for its purpose. Further experience has demonstrated its inadequacy, and impelled me to make experiments in devising a bed which will more fully meet the requirements already outlined. The surgical cot which I now present comprises a modification of the familiar canvas-covered frame, with provision for supporting it and maintaining uninterrupted rest, fixation, and accurately adjusted pressure and traction. Fig. 8 shows it open; Fig. 9, closed. It consists of a rectangular frame of iron, a canvas bottom, and an iron support, upon which the frame is adjustable at any convenient height or incline. The rectangular frame must be stiff enough to stand, without bending, the patient's weight and the strain involved in stretching tightly a heavy canvas. It should be from four to six inches longer than the patient (forty-eight by fifteen inches inside will be found a convenient size for children under five years old), and it should

be made of three-eighths inch pipe. Larger sizes should be made heavier. The canvas should be No. 2 for sizes under forty-eight inches; thicker for larger sizes. It is to be hemmed and made a little shorter and narrower than the frame to allow for stretching, and provided with eyelets

canvas (Fig. 10). They should be about six inches wide, long enough to extend an inch or two above and below the projection, and be a half to three quarters of an inch thick, except at the ends, where they are flattened. They are placed longitudinally each side of the middle, so that a groove about a half to three quarters of an inch wide exists between them. Their object is to press upon each side of the prominent spines, and to protect the bony projection. The patient is replaced upon the canvas and the shoulders are secured by the straps. To exert a pressure upon the kyphos in such a way that it may be accurately regulated, there is the following arrangement: Two, three, or more straps of webbing are placed side by side transversely under the canvas and across the kyphos so as to buckle at each end around the iron frame. By the use of these straps, which constitute a most important feature of the apparatus, the reforming pressure is always under control, while the weight of the parts anatomically above and below is brought into play to secure a backward leverage. The cervical and lumbar hollows should

be filled by small pads without groove sewed on. The sagging of the canvas results in the formation of a shallow trough which interferes with lateral motion, and as the material yields to the warmth and pressure of the prominent parts after a few days, the back is generally accurately fitted. By feeling the under side of the canvas it may be ascer-

through which pass stout cords by which it is laced to the frame. Warming the canvas will assist in getting it tight. A hole, preferably a narrow oval, is provided for the purposes of micturition and defecation. It should measure, for a child under five years of age, six inches by three inches and a half. Its long diameter coincides with the longitudinal median line of the canvas, and the center should, when the spine has not been shortened, be about three fifths distant from the top. When the spine has been much shortened, a special canvas will have to be made. The edges of the opening must be strongly and neatly bound and hammered flat. The vessel is placed underneath, supported at the proper height by a stool, box, pile of books, or in some such manner. It is brought to the patient, and not the patient to the vessel. The opening is closed by an under flap a little broader than the hole is long. One end of it is sewed to the edge of the canvas, and the other secured by three or more stout straps arranged to buckle around the side of the frame.

The patient is laid upon the couch in the position he is to occupy, so that the anus is placed at the upper end of the opening. The locations of the neck and axillæ are marked upon the canvas, and marks are also made by means of which the situation of the kyphos can be determined. He is then removed. Padded straps of webbing, arranged to pass around the shoulders and through the axillæ and provided with buckles, are sewn to the canvas. The buckles should be placed close to the sides of the neck, where they will be least accessible to the patient, and the straps diverge. The sewing can best be done with a sailor's palm and needle. A strap to lie loosely across the chest and having in each end a loop through which the shoulder-strap passes will prevent the slipping off of the latter. If the case be one of cervical or high dorsal disease, loose pads of kersey, hair, felt, or some similar elastic material covered with linen can be easily placed under the neck. But for lower spondylitis the pads should be sewed to the

tained whether such is the case. The weight of the body serves to maintain a close contact with the couch. The lacing should be tightened from time to time. The most perfect fixation of the spine is secured by the application to the back of some rigid material; but this involves the danger of pressure sores, or, to prevent them, a frequent removal and reapplication of the apparatus. Thus the patient must be turned over frequently. In most if not in all cases sufficient fixation is attained by fastening the patient to the couch by means of the shoulder straps by webbing passed around the side bar and buckled to the pelvic belt and by the use of traction. A pillow should be put under the lower extremities to prevent pressure on the heels and also to relax the flexors. A towel fastened around the rectangular frame and the thighs prevents the patient's kicking. The covering is also wrapped around the patient and the frame and so keeps the back warm.

For the purpose of applying traction there is a broad, flanged, wooden pulley which turns on a steel bar placed

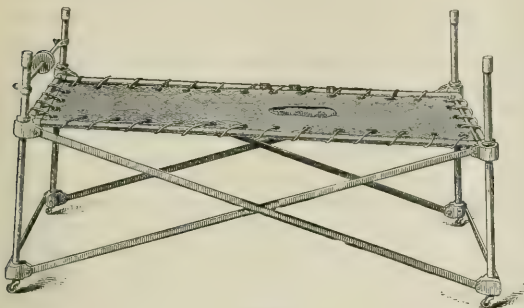


FIG. 8.

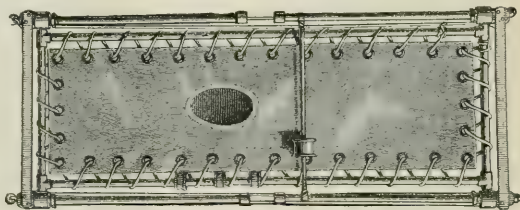


FIG. 9.

across either end of the apparatus at any convenient height. The cord connecting the head-sling and the weight is passed two or three times around this drum, and so can not be thrown off. Should the patient move his head laterally, as may be allowed in convalescent cases, the pulley and weight follow the movement. I have sometimes secured the headpiece to the top of the frame and allowed the weight of the parts below the disease to act as the tracting force. Steele, of St. Louis,* fastens the side rings of the headpiece to uprights placed at a considerable distance apart in the head of the frame which he employs, and thus secures some lateral fixation of the head. By the use of the cot I have been able to keep up an absolutely uninterrupted rest with traction, and render the patient perfectly comfortable for months at a time. The addition of rubber-tired wheels and a parasol has contributed to the comfort

saved from all traumatisms, except that of respiration, is thus placed in the best possible condition for repair; and what is of great importance, fever and the drain of muscular spasm, pain, and perverted nutrition are met by a state of systemic rest.

A feature about this measure in chronic bone disease which is surprising to all to whom it is not familiar is the way patients thrive under it. It is true that while a gain in weight is the rule, the muscles soon become soft, and a loss of muscular strength may occur. This loss is a gain; to the spondylitic spine muscular strength is a menace. So long as the nerve connections are preserved the muscle remains capable of restoration, and no permanent damage by rest is possible. Nature never makes the mistake of demanding as a condition of recovery the use of any parts (as in this case bones and muscles) which are unable to perform

their functions. When the fixation and traction are efficient, patients are relieved of pain, sleep well, and soon lose the drawn, old, tired expression so familiar upon the faces of those suffering from the great drain of prolonged muscular spasm. I believe that the amount of caries is thus materially limited, that much deformity is prevented, and that the duration of the disease is materially shortened. Another merit of this therapeutic measure is that its employment does not demand the exercise of the mechanical skill and experience which are necessary to the successful employment of a portative apparatus. In places where a spinal support can not be readily obtained, recumbency with regulated pressure and traction may be adopted until other arrangements can be made. Patients may, if necessary, be moved long distances, and with safety and comfort, upon a frame.

Recumbency is indicated as routine treatment as soon as the diagnosis of spondylitis has been made, or even when



FIG. 10.

of the patient and the convenience of the friends. The cot is made in sizes up to fifty-six inches by W. F. Ford, of New York.

It is evident that when the patient is recumbent all the indications may be more perfectly met than in any other position. The force of gravity, which by leverage and by longitudinal pressure acts upon the upright spine as a powerful destructive and deforming agent, can now be converted into a reforming force. Direct backward pressure can be accurately antagonized. Muscular action and interosseous pressure, now greatly reduced by the general condition of inactivity, can be counteracted by fixation and by far less traction than would be required to raise the weight of what were superincumbent parts. The spine, relieved of the performance of all its active functions and

it is probable; for the intrinsic tendency of the disease to progress is in each new case such an unknown quantity that no time should be expended during the developmental stage by experimenting with less thorough methods of treatment. In case of a patient wearing a support, progressive deformity or the persistence of pressure sores should be regarded as demanding recumbency. It is, of course, presumed that the brace had been skillfully designed and applied, that pressure had been diffused over as much surface as the case will permit, and that by cleanliness and dryness every care had been taken to protect the skin. While no method can claim to prevent in all cases an increase of deformity, such increase should in no case be regarded as inevitable until it is ascertained what can be done by the careful use of mechanical force applied to the passive horizontal spine. Marked psoas rigidity denotes a

* *Medical Fortnightly*, St. Louis, February 1, 1891.

considerable degree of activity of the disease, and probably abscess. When the patient walks or stands with the thigh flexed, the forward inclination of the trunk causes the weight of the mass above to act at a great mechanical advantage in the production of deformity. Support is thus made very difficult and uncertain, and femoral movement exerts, through the shortened muscle, a direct traumatism upon the diseased spine. These cases should be treated in the horizontal posture, and the limb elevated upon an inclined plane sufficiently to relax the psoas muscle. By means of adhesive plaster a weight is attached to the limb and traction made as in hip disease. As the muscle relaxes the plane is to be lowered. Pott's paralysis, even a slight dragging with exaggerated reflex, should be regarded as an unequivocal indication for recumbency with all possible traction. Many very brilliant results, even when there were present incontinence of urine and feces and large bedsores, have thus been obtained. Patients with abscess should generally be treated in the horizontal position; always if the abscess is new or increasing. Night cries, a grunting respiration, peripheral pain referable to the spinal nerves coming from the seat of the

ful whether the case is doing as well as it should may be regarded as an indication for recumbency.

I trust that this cot, aside from its employment in Pott's disease, may be found of service in any case, surgical or medical, when prolonged rest is necessary. It has proved very serviceable in rhachitic spinal curvature. For hip disease with flexion the inclined plane may be used, as in psoas contraction from spondylitis. In fracture of the femur the railroad splint may be employed. It should extend well up to the buttock and is a very perfect means of preventing eversion. The tops of the uprights, at what might be termed the head and the foot of the couch, may be joined by steel rods adjustable to any height, and across these may be placed longitudinally, like a ridge pole, a bar. This is located over the middle or at either side, and is intended to support by slings an arm or a leg (Fig. 11). It has been used to secure both lower limbs in a vertical position for fracture of the thigh. It is not recommended in spinal disease, as the patient may try to raise himself by it. This ridge pole and the uprights may be useful to hold up a mosquito net. A tray is easily added, or a light sewing table may be placed over the patient. I

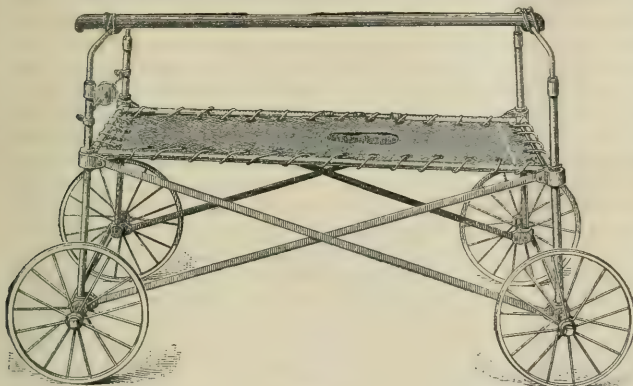


Fig. 11.

disease, an inclination of the patient to lean on chairs, etc., indicate an insufficient support and the need of recumbency.

It is evident, however, that confinement to the cot can not be continued during the whole course of a spondylitis, nor is this necessary. When, by the absence of pain, fever, and progressive deformity and by a diminution of the area of spinal rigidity, we are led to conclude that the acute or actively destructive stage of the disease has passed, the patient may gradually be allowed more freedom under the protection of an apparatus carefully adapted to the needs of the case. This is *always* done tentatively with watchful supervision; and the slightest increase of deformity, or an occurrence of pain or irritability, or the evidence by face, attitude, or gait that he is not getting the proper support, should be the indication for a return to the horizontal position. This holds good at any time in the course of the disease, and any intercurrent change which makes it doubt-

ful whether the case is doing as well as it should may be regarded as an indication for recumbency. I think by the use of this couch, which does not occupy much more floor space than the patient, a helpless child or young person may be quite easily handled, and may be readily moved about the room, placed near the window, or taken out into the sunlight and fresh air. The little invalid's world would be thus greatly enlarged. When the opening in the canvas is not to be used, a water or air bed or any kind of mattress may be employed, or the canvas may be replaced by iron springs. When the cross-pieces and the ridge pole are taken off and the uprights folded down, the couch may be converted into a stretcher with or without wheels; or the rectangular iron frame alone may be so used. I hope

soon to present a bed of a construction better adapted to the needs of adult patients.

THE PROXIMATE CAUSE OF THE TRANSIENT FORM OF MYOPIA ASSOCIATED WITH IRITIS.

WITH REMARKS ON OTHER FORMS OF SYMPTOMATIC AMETROPIA.*

By A. SCHAPRINGER, M. D.

THE clinical fact that iritis in a considerable proportion of cases is apt to occasion a transitory myopia of low degree—about 1.5 D. to 2.0 D.—was first put on record by Dr. John Green, of St. Louis, the well-known authority on questions connected with refraction. Since the time that he

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read his paper on this subject before the American Ophthalmological Society in 1887 his discovery has been verified by a large number of other observers.

As to the proximate cause of the increase of refraction as a symptom of iritis Dr. Green did not offer any speculations.

In a paper on Symptomatic Myopia, read before the American Ophthalmological Society in 1888, Dr. W. F. Mittendorf advanced the theory that this transient increase of refraction was the result of an infiltration of the anterior portion of the vitreous body, increasing the bulk of this organ to such a degree as to push the lens system forward and with it the posterior principal focus of the eye. This theory I do not feel inclined to adopt, because as long as the tensile strength of the suspensory ligament of the lens remains unimpaired, an increase of pressure in the vitreous chamber would have to be very great indeed to displace the lens forward. The globe would feel very hard on palpation, other symptoms consequent upon increase of tension would be present, and there would be hardly any difference in the clinical pictures of iritis and acute glaucoma.

According to another theory, the increased refraction is said to be due to an augmentation in the corneal curvature produced by the increased pressure of the lids in consequence of the great photophobia. The negative results of ophthalmometric measurements completely disprove this theory.

Still another hypothesis alleges a spasmodic condition of the ciliary muscle as the cause of the symptom in question. This hypothetical cause forming the base of certain therapeutical recommendations lately made by Dr. Charles A. Oliver, of Philadelphia,* the question of the correctness of this hypothesis must henceforth be regarded as not merely of theoretical but also of practical interest.

Dr. Oliver insists that the refraction of the eye should be carefully and repeatedly tested in the course of an attack of iritis, and that instillation of strong mydriatic solutions should not be discontinued as long as the increased refraction persists, even after the pupil has been fully dilated. The presence of myopia proves the presence of spasm in the muscle of accommodation, and this being a pathological condition, it needs to be combated by the appropriate means at our disposal.

Now Dr. Green has already pointed out that the fact that the increase of refraction persists for an indefinite time after the pupil has fully yielded to the action of atropine was a proof militating against the assumption that the transient myopia was due to spasm of accommodation. Besides this argument advanced by Dr. Green, the supposition that inflammation will cause a spasmodic contraction of the ciliary muscle is contrary to all physiological experience in regard to analogous conditions elsewhere in the human organism. To bring forward only one example, let me refer to the behavior of the muscular coat of the intestine in peritonitis, where it is anything but contracted.

On the contrary, it is completely paralyzed, and by its paralysis causes two of the main symptoms of the disease, tympanites and constipation. The contraction of the pupil in iritis is not due to spasm of the sphincter iridis muscle, but is only dependent on the swelling of the tissue of the iris in consequence of hyperæmia and infiltration. It is also a very significant fact in connection with the question here discussed that in the insidious forms of sympathetic iridocyclitis the first sign of impending trouble is the *diminution* of the power of accommodation, causing recession of the near point.

Having dismissed all the theories hitherto enumerated as unsatisfactory, it behooves me to substitute one against which no valid objections could be raised. I think that the transient myopia of iritis can be best explained by a temporary increase of the refractive index of the aqueous humor. That the composition of the contents of the anterior chamber in iritis differs from that in the normal state is not a hypothesis, but a fact. The formed particles suspended in the aqueous humor, rendering its aspect turbid, will, of course, have no influence upon the refraction of the eye. We are here concerned only about the transparent part of the liquid. Judging from the deposits, among other substances, of fibrin upon the walls of the anterior chamber, nothing would seem more plausible than to assume that in iritis the aqueous humor contains this substance in more than the normal quantity. If this is the case, it follows from physical laws that its index of refraction must be increased. A higher index of refraction of the aqueous will produce myopia, because the beams of light which receive an inclination toward the optical axis, when refracted at the anterior corneal surface, will receive an additional inclination toward this axis at the posterior corneal surface. In the normal state there is no refraction at this surface, because then there is no difference between the refractive indices of the cornea and of the aqueous humor. The posterior wall of the cornea in iritis represents a convex refracting surface with a medium of higher refrangibility behind it than before. Consequently the optical conditions present at this surface will be the same in kind, though not in degree, as those present at the anterior surface.

If the refractive index of the aqueous humor of an emmetropic eye were lessened instead of increased, the inclination of the rays of light toward the optical axis would be diminished and the eye therefore rendered hypermetropic.

The question now presents itself, How much must the index of refraction of the aqueous be increased in order to produce a given degree of myopia?

In order to solve this problem, we have to take into consideration the factors coming into play at the refraction by the posterior corneal surface. The relation of the constants is expressed by the well-known formula—

$$F_2 = \frac{n_2 r}{n_2 - n_1}$$

We wish to calculate the value of n_2 , which represents the index of refraction of the aqueous humor:

$$n_2 = \frac{F_2 n_1}{F_2 - r}$$

* La correction exacte des vices de réfraction dans l'iritis plastique. *Annales d'oculistique*, Jan., 1893.

F_2 represents the second principal focal distance of our refractive system, consisting of corneal substance, posterior corneal surface, and iritic aqueous, or, in other words, the collective power of this system. This collective power is measured by the concave glass placed before the eye, neutralizing the collective power by its dispersive power. In substituting the reciprocal value of this glass, we have to deduct the distance of the correcting glass from the posterior corneal surface.

n_1 stands for the refractive index of the corneal substance, which is 1.3365 according to Helmholtz.

r represents the radius of curvature of the posterior wall of the cornea, which, following Tscherning, we will put down as six millimetres.

Carrying out the calculation for different degrees of myopia as met with in iritis, we find the following values of n_2 :

Degree of myopia.	Index of refraction of aqueous.
1.0 D	1.345
1.5 D	1.349
2.0 D	1.353

The increase from the normal—which is 1.336—not being considerable, the figures at least do not speak against the plausibility of our hypothesis.

If we accept this hypothesis as the true explanation of the myopia occasioned by iritis, we shall refrain from continuing the instillations of atropine after the pupil has fully yielded to its action and the congestion has subsided, although the myopia may still be present. Our theory furnishes a contraindication against the persistent employment of atropine under these circumstances, inasmuch as a dilated pupil means an obstructed iris angle, and this means interference with the drainage of the anterior chamber. We shall not feel inclined to do anything to keep the morbid aqueous humor longer in the anterior chamber than necessary. Our hypothesis furthermore does not impose upon us the obligation of carefully and repeatedly testing the refraction of eyes affected with iritis, of which release we shall avail ourselves with avidity and earn the thanks of our patients.

If the myopia persists for some time after the subsidence of the inflammatory symptoms and we should feel called upon to hasten the work of Nature, massage of the eyeball would offer itself as a local therapeutic measure in consonance with our theory.

The two recognized varieties of myopia in general are axial myopia, which is the most common form, and myopia of curvature. If our theory as to the causation of the transient nearsightedness occasioned by iritis is verified, we shall have "index myopia" as a third type of this error of refraction.

To test the merits of the theory here propounded, very accurate measurements with instruments of precision rarely met with in the possession of practitioners will be necessary. Those who have a Helmholtz ophthalmometer, or, what seems to be a still more suitable instrument for the purpose, a Tscherning ophthalmometer at their disposal, will deserve the thanks of the profession by taking up this problem. The shortest way to determine the re-

fractive index of iritic aqueous would be to tap the anterior chamber and test the liquid obtained by means of an Abbé refractometer; but the clinical indication for paracentesis of the cornea hardly ever arises in the course of plastic iritis.

Since we are discussing the subject of index ametropia, the question naturally suggests itself, What would become of an emmetropic eye if the index of refraction of the vitreous body be increased?

The answer to this question will be found in the following consideration:

The beams of light, striking the concave anterior surface of the vitreous, are deflected toward the optical axis to join it at the place of the retina. The strength of the deflection depends upon the difference of the refractive indices of the crystalline body and the vitreous. The index of the vitreous being the lesser quantity, we will, by increasing it, lessen the difference between it and the crystalline index, or, in other words, lessen the inclination of the rays of light toward the optical axis. This means that the emmetropic eye is being rendered hypermetropic.

A change in the refractive index of the vitreous will therefore have the opposite effect from that which is produced by the same kind of change in the aqueous.

In the intervals between the prodromic attacks preceding an outbreak of inflammatory glaucoma the patients usually complain of being compelled to use increasingly strong convex glasses in rapid succession for reading purposes. This is usually explained as the result of a rapid diminution in the power of accommodation, but it seems to me not improbable that this symptom may have something to do with an increase in the refractive index of the vitreous body. Such an increase, as said before, will render an emmetropic eye hypermetropic, and a hypermetropic eye still more hypermetropic. I have met nowhere with the distinct statement from any observer that, while the near point of the glaucomatous eye thus rapidly receded, the far point was found to remain stationary.

The myopia caused by diabetes is a form of myopia to which Hirschberg has called attention and which is probably also a type of index ametropia. I have myself recently met with two cases of this kind in succession—one of them in a lady sixty-one years old, referred to me by the kindness of Dr. S. J. Meltzer, of this city. The acquired myopia in both cases was of considerable degree, being more than 6 D. An increased curvature of the front surface of the lens I can hardly deem accountable for this, since the depth of the anterior chamber, at least as far as could be made out without the use of the instruments of precision mentioned before, seemed perfectly normal in both cases. A decrease in the refractive index of the cortical substance of the lens will, I think, best account for this type of myopia, if the myopia is to be accounted for by a change in this organ. Such a decrease will increase the refractive power of the lens system as a whole and thereby bring the posterior principal focus of the eye in front of the retina. It may sound paradoxical at first that the collecting power of a biconvex lens like the crystalline body should be increased by a decrease in the refractive index

of one of its constituent parts. But it must be remembered that the cortical substance represents a system of concave or dispersive lenses which neutralize the over-strong collective power of the globular nucleus. By lowering the refractive index of the cortex we lessen its dispersive power, and the result will be a preponderance of the collecting power of the nucleus; the principal focus of the eye is thereby brought forward and the eye made myopic.

Since writing the foregoing my attention has been drawn to a paper, On the Presence of Sugar within the Eye in Experimental Diabetes,* by the brothers Cavazzani, an abstract of which has recently appeared in the *Centralblatt für prakt. Augenheilkunde* (supplement for 1892, p. 496). Having made experimental researches on the functions of the pancreas, these authors report the results of the chemical analysis of the refracting media of two dogs which were afflicted with a permanent form of diabetes in consequence of the extirpation of the pancreas. The animals were killed in due season and their eyeballs enucleated. In the first dog the aqueous humor contained 0.386 per cent. of sugar. In the peripheric layers of the lens very little of this substance was found, and none at all in the nuclear portion of the lens and the vitreous body. In the second dog sugar in the proportion of somewhat less than 0.05 per cent. was found in the aqueous humor and none at all in the other refracting media.† The lenses were completely transparent and anatomically normal in every respect. The fact that the lens, at least of one of the animals, contained sugar, speaks against the theory enunciated by Deutschmann,‡ which says that no sugar can diffuse into the substance of the lens as long as the epithelial layer of the lens capsule remains intact.

In the investigations of the Italian experimenters, at least as far as they are reported in the *Centralblatt*, no attention was paid to the refraction of the eyes during life or to the refractive index of the media subjected to chemical examination. I hope that in future investigations of the same kind these matters will not be lost sight of. The results of the chemical analysis make it probable that the aqueous humor at all events plays an important part in the production of diabetic myopia. Future investigations will have to show whether the peripheric layers of the lens are also concerned in this change of refraction and how far. It is very characteristic that the vitreous body of the diabetic dogs was found absolutely free from sugar. This is in remarkable harmony with what was pointed out before on theoretical grounds—viz., that the degree of myopia produced by an increase of the refractive index of the aqueous humor will not become further increased by an increase of the refractive index of the vitreous body, but, on the contrary, an increase of the refractive index of the vitreous would neutralize, more or less, any myopia caused by a change of index of the aqueous humor.

* This is a portion of a larger work, *Le funzioni del pancreas ed i loro rapporti colla patogenesi del diabete*. Venezia, 1892.

† From the marked difference in the chemical behavior of the aqueous and the vitreous the authors draw the conclusion that the sources of nutrition of these two substances must be entirely distinct.

‡ V. Graefe's *Arch. f. Ophthalm.*, 1887, p. 229.

ONE HUNDRED OPERATIONS FOR SEVERE STRUCTURAL DISEASE OF THE ABDOMINAL AND PELVIC ORGANS OF WOMEN.*

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THE author has adopted the usual method of surgeons in reporting cases as they occur in practice. It is also convenient, as it furnishes one an opportunity to take into consideration the propriety of methods and an inventory of results. The present list includes my work in this department from November, 1888, until the end of February, 1893. By far the greater part of this surgery has been done in Columbia Hospital in this city, where excellent facilities are afforded.

It is the rule in this hospital to call a consultation of the staff to determine if the case in question be a suitable one for operation. It is not my purpose to consider here the advisability of this rule, but one very excellent purpose is accomplished by it—i. e., the prevention of unnecessary surgery. There can be only slight danger of a charge of too frequent use of the knife or of undertaking too many easy operations, although there is danger of disadvantage to the patient from delay. On the other hand, it is the custom to operate only when life is in danger, or when the patient is no longer able to work, and when definite and generally extensive disease can be discovered by any one not necessarily an expert in pelvic examination.

The list shows how large a proportion of cases of pelvic abscess, or tubo-ovarian abscess, have been treated. On the other hand, it may be seen how rarely have operations been performed for "oophoritis," salpingitis, etc. Again, it may be observed how seldom operation has been done early enough to find only "pyosalpinx." In but six cases in forty-four, where pus was present, could it be said that the disease had not extended beyond the tube. These were not necessarily recent cases, for they were in some instances still "pyosalpinx" after years of waiting and suffering, and good, bad, and indifferent treatment. The rule is nearly correct, however: first elytritis or endometritis, then salpingitis, pyosalpinx, tubo-ovarian abscess, and pelvic abscess. The period of time required to accomplish these steps in the formation of a pelvic abscess differs greatly, and bears intimate relation to the cause of infection. Of this I shall not write at present.

Pelvic Abscess.—Seventeen cases of pelvic abscess were treated by radical operation, with five deaths. Of the seventeen, seven resulted from infection during or following abortion. In four, quite positive evidence of gonorrhœa was ascertained to have been the cause of infection and suppuration. In four, the abscess formed soon after delivery at term, and was due to puerperal sepsis. The source of infection in the remaining cases could not be ascertained.

The amount of pus in these cases varies greatly, from a small quantity to a quart or more. The quantity of pus does not always indicate the extent of disease or bear direct relation to the prognosis.

* Read before the First Pan-American Medical Congress.

In more than one case the remnants of ovaries and tubes removed were but slight evidence of the severity of the operation, or the very critical condition of the patient. In not one case could the pus have been reached satisfactorily by aspiration.

The list includes—with two exceptions—all cases of pelvic abscess occurring in my service during two years. In one of the cases, not mentioned, occurring in a private patient, the abscess was low enough to be reached by vaginal incision and drainage. She recovered and improved greatly, notwithstanding the presence of the diseased appendages, which remain and threaten a repetition of the suppuration on the other side. In the other *exception* the patient would not consent to operation when requested, left the hospital, and returned in a week ill with peritonitis, which was not relieved by vaginal incision or later by abdominal flushing. The operation in nearly every case involved the separation of omental adhesions from the anterior abdominal wall, as well as from the uterus, bladder, and upper wall of the abscess and intestines. In at least two the omentum was tied off entirely across the lower border.

The abscess wall consists of Falloppian tube, ovary, broad ligament, pelvic wall, omentum, mesentery, uterus, and Douglas's *cul-de-sac*, and involves the bowel in some instances nearly to the umbilicus. In no case was the pus found within the broad ligament. The tube and ovary, having been the first to receive the infection, are generally distorted and even disorganized, in some instances forming but a small portion of the abscess wall.

No. 67, a pyæmic mesenteric abscess, had developed without apparent infection of either tube or broad ligament.

Result of Operation in Pelvic Abscess.—Severe shock generally follows an operation in each case. This has been anticipated as far as was possible by the administration of heart tonics and stimulants. Usually an hour is required to complete the operation in so formidable an undertaking. The temperature is generally reduced by section, and is often subnormal and very unreliable, as it fails to indicate correctly the extent of sepsis or inflammation. The pulse is generally quick, often reaching 140 or more, and is indicative of shock and exhaustion.

These symptoms of shock may continue for two or even three days; then, if the bowels are open, the patient rapidly recovers.

With the exception of the opium habit in one case, which was formed during the many months of suffering the poor woman experienced prior to section, I know of nothing but perfect results in the cases of patients surviving laparotomy for pelvic abscess.

One woman has, since her recovery, returned to the lying-in department of the hospital and safely given birth to a child at term.

Pyosalpinx, Tubo-ovarian Abscess, Hydrosalpinx, Cystic Ovaries.—In twenty-seven of this list of thirty-four cases pus was present and poured out of the abdominal incision when the pus sac was ruptured, or when the separation between the distal extremity of the tube and the ovary occurred, which often happens when a tubo-ovarian abscess

is removed. In the other cases no free pus was present. Two of these were purely hydrosalpinx with cysts of the corresponding ovary. The others were large cysts of the ovary, in one instance containing a pint of fluid. In each case the contents were regarded as infectious. The infection in each case had entered the tube and been communicated to the ovary through the uterine mucosa. No positive evidence of tubercle could be ascertained in any case.

In thirteen the disease was a result of gonorrhæal infection. In the other pus cases infection was nearly always found due to septic abortion. In a few no cause could be ascertained.

A rise of temperature was observed in nearly every pus case prior to section. The pulse was generally quick, and pelvic examination revealed pelvic peritonitis with the ever-present fixation of the uterus and more or less distinct masses on either side of the uterus or filling the pelvis entirely.

Immediate Result.—In this list two deaths occurred. The first was due to an unsuspected pyæmic uterus from a "missed abortion." The patient had only a cystic ovary removed and did not have pyosalpinx. The other death was due to shock following section. This patient, a German Jewess of poor intelligence, had previously been treated in the hospital for mammary abscess. She was discharged well. In a week she was back with a severe attack of peritonitis, feeble pulse, great pain, and high temperature. She improved again, and when an operation was finally determined upon another attack of peritonitis occurred which the operation failed to relieve. The favorable moment in this case was lost. The patient resisted every measure taken for her relief and insisted upon vomiting or otherwise discharging all food and medicine given for her relief. There should be hardly any mortality in these cases.

Final Result.—However much disputation there may be as to the propriety of abdominal section for nervous or mental disease due to ovarian degeneration or irritation, there can be very little plausible objection to operations for pus. The final result is, as a rule, very satisfactory. Some women have all the symptoms due to menopause after the removal of large ovarian abscesses which have existed for months, and which leave no visible remnant of the ovary to be recognized as such. There may be a mere shell or thin sac left, yet menstruation may continue at regular intervals before and after the operation.

These consequences, of however great importance, should not and do not deter the surgeon who operates to save life or even to prevent invalidism. I am quite of the opinion that no surgery is of more importance, or attended with better results in every way, than that for the suppurative pelvic disease of women.

Nos. 21, 35, and 50 required a second operation in each instance. No. 21, a blood cyst of the ovary, right side, was removed with great difficulty. The left ovary was so small and concealed by adhesions that I could not find it. It grew to form another blood cyst, which I removed some months later. No. 78: I found the viscera transposed in this case, the appendix on the left side.

No. 35 had oophorectomy done, removal of hydrosalpinx, etc., for menorrhagia and pain, and afterward required vaginal hysterectomy for sarcoma of uterus.

No. 50: a sinus opened up and infected ligature removed, which was used in tying off a small myoma attached to the fundus uteri.

With the above-mentioned exceptions, I know of nothing in any of these cases but a perfect result.

The author rarely finds a case for operation in the stage of primary inflammation. If surgeons generally can detect a salpingitis early enough to prevent a gonorrhœal infection of the peritonæum by a resort to salpingectomy, such practice I should consider correct, but it has not been my experience to find these cases in hospital or even other practice. The suppurative stage is reached and the case is no longer one requiring hot douches, iodine applications, etc., but demands surgical treatment. In short, I consider salpingitis of infectious character of short duration, and not often do many days elapse before pus has formed, when it is practically no longer a salpingitis but a pyosalpinx—an abscess.

Oophorectomy for Myoma.—As may be seen in the summary, only twice have I operated with the intention of checking the growth of uterine myomata. In one case—in a young lady—the operation was easily done and gave a very good result. The tumor is not growing and her mental condition, which was very greatly disturbed, has improved until, in fact, she is quite well. She ceased to menstruate, and I think the operation will prove a success.

In the other case a negress had a large pelvis-bound myoma with suppurating tubes and ovaries, which were with great difficulty removed. The patient had unexpected mania for two weeks, beginning a week after the operation. She recovered from the operation and returned to her home, lived about a year longer, and I have not learned the cause of her demise. This case is the only one in which I have considered the removal of the tumor an impossibility. It is probable that the patient would have died under the operation had entire removal been attempted.

Vaginal Hysterectomy.—Only three cases of uterine carcinoma were thought favorable for complete extirpation. In nearly every case sent me by physicians the disease was found already too far advanced to hope for a complete extirpation and eradication of the disease.

My earlier experience (1886 to 1888) with this operation was confined to cases of which I can say nothing but that it was not good practice to attempt complete extirpation in such advanced disease.

In one case (No. 81) the uterus was removed for proclivencia.

Silk ligatures were used in each case. The operation is quite an easy one, and should be frequently performed if cases are found sufficiently early. In each case the recovery was comparatively uneventful. One case required the combined abdominal and vaginal method, the bladder being torn in the operation, it being apparently softened by disease. It was immediately sutured, and the patient had perfect healing in every respect before she left the hospital.

Batley's Operation.—In all cases where the ovaries were

removed for the purpose of curing pain, producing an artificial menopause, or preventing impending insanity, it has been the unvarying custom of the author not only to have careful consultation with his *confrères* as to the propriety of the operation, but to know beyond a reasonable doubt that other means of cure have been satisfactorily tried. In nearly every case, in addition to this, some abnormal condition—such as enlargement, prolapse, or other result of chronic disease—was discovered before the operation. Five cases of this list come under this heading. All the patients recovered from the operation. One of them, operated on for incipient insanity, recovered well and has been able to attend to the duties of her profession constantly since that time. Another, the second, appeared greatly benefited at first, but in six months committed suicide. I regret to say that I was deceived in this case by the friends and physician of the patient, who failed to tell me of her previous attack of insanity. A third case was not in the least influenced by a double salpingo-oophorectomy (one ovary being quite large from cystic degeneration).

The other patients had suffered great pain, and were anxious to have something done for them at any risk, and, although the operation was done after due trial of other remedies and because some disease was believed to have been present, yet it was attended with but poor result, as they are (two of them) still complaining.

Uterine Myomata.—Eleven supravaginal hysterectomies for myoma, with three deaths. One death was due to hæmorrhage from a wounded mesentery in a case of complete extirpation (tumor, twenty pounds). The two other patients died of shock and obstructed bowels, with very little evidence of peritonitis, five days after the operation. Three operations were completed by using the wire clamp; one death occurred. Three by the ventrofixation method; one death. Four by complete extirpation; one death. One large, soft, parasitic myoma, operated upon by the Schroeder method, ended in recovery.

My experience leads me to the conclusion that if operators select only such cases as are no longer able to work, and who have very large tumors with great pain—which is almost positively due to severe complications—just so long will the mortality from hysterectomy be high. *Per contra*, if a diagnosis could be made while the growth is still within the pelvis, and the patient sent to the surgeon for operation before complications—adhesions to viscera, etc.—arise, the mortality would be greatly reduced.

In nearly all of my cases severe difficulties were encountered which greatly prolonged operation, and to this I attribute the mortality. Of the eleven hysterectomies, nine were done for colored women. Two patients were white and made good recoveries. This shows a death-rate in negroes of thirty-three per cent. I do not consider them good subjects for surgery.

Hysterorrhaphy (Ventrofixation).—This operation was done in seven cases for prolapse or retro-displaced uteri, and in two of them prolapsed, adherent, or diseased ovaries were removed. One death occurred which should be charged against the operator or assistants, not the method. In this case a diseased and prolapsed ovary was removed without

thought of infecting the cavity of the peritonæum, yet peritonitis quickly developed and carried off the patient. I have abandoned Alexander's operation for ventrofixation. The latter operation is easy of performance and should give no mortality. Three buried silkworm-gut sutures are used to anchor the uterus to the abdominal wall, which in each case have given no trouble and perfectly satisfactory results.

The author has given the names of physicians as reference who were formerly or are at present either the medical attendant or who know the history of the patient since operation. He also takes pleasure in inviting any who desire full particulars of any case herein mentioned to call upon Dr. J. T. Kelly, resident physician of Columbia Hospital, my valued and very competent assistant, who will answer any inquiry.

No.	Age.	Disease.	Cause.	Result.	Drainage.	Remarks.	Date.	Reference.
1	37	Salpingitis, ovaritis, etc.	Pelvic peritonitis.	Recovery.	Yes.	Had been an invalid for years.	11, 24, '88	Dr. Hicks.
2	26	Tubercular peritonitis.	Tubercular appendages.	Died, five days.	"	Repeated attacks of peritonitis for years.	12, 15, '88	I. S. S.
3	27	Tubercular kidney.	.....	Recovered from operation.	"	Nephrotomy.	11, 17, '88	I. S. S.
4	38	Hysteria, incipient insanity.	Suspected ovarian disease.	Improvement, satisfactory result.	No.	Salpingo-oophorectomy; patient attends to usual duties.	7, 5, '89	I. S. S.
5	33	Hysteria, menorrhagia, pelvic pain.	Cystic ovaries.	Cure.	"	Salpingo-oophorectomy.	11, '89	Dr. Christian.
6	35	Menorrhagia, impending insanity.	"	First, improvement; suicide later, six months.	"	"	6, 16, '90	I. S. S.
7	35	Ovarian cyst, fifteen pounds.	Dermoid.	Recovery.	Yes.	Many slight adhesions.	7, '90	Dr. Taylor.
8	29	Cyst of ovary.	.....	"	"	Cyst ten ounces; omental adhesions.	9, 11, '89	I. S. S.
9	40	Myoma uteri.	In negress.	"	No.	Wire clamp.	11, '90	Dr. Hoge.
10	30	"	"	"	"	Ventro-fixation; ten-pound growth.	5, '91	Columbia Hospital.
11	40	"	"	Sinus left from ligature.	"	Sinus permits pseudo-menstruation from stump of uterus.	6, 1, '91	Do.
12	45	"	"	Recovery from operation.	"	Twenty-pound tumor adherent to everything; patient in <i>extremis</i> several days; recovery from operation. Mental condition very unsatisfactory before and after operation.	6, 11, '91	Do.
13	35	Parasitic soft myoma, eighteen pounds.	White patient.	Perfect cure.	Yes.	Dropped pedicle, which was from right broad ligament; only a small slender pedicle from original uterine origin, near fundus.	6, 18, '91	I. S. S.
14	32	Retroflexion, disorganized appendages.	Old chronic inflammation.	Recovery.	No.	Patient had been an invalid for several years.	7, 2, '91	Dr. Gott.
15	30	Hystero-epilepsy, pelvic pain, large ovary, salpingitis.	Pelvic peritonitis.	Cure of pelvic pain, not of neurosis; improvement.	"	Improvement in health; now able to work.	7, '91	Columbia Hospital.
16	28	Pelvic abscess.	Puerperal infection at term.	Recovery.	Yes.	Patient sick eight months (septicemia) before operation.	8, '91	Do.
17	..	Extra-uterine pregnancy.	.....	Died.	....	Patient in collapse all day before operation. Fourth month, hemorrhage outside sac without rupture.	9, '91	Do.
18	20	Suspected tubercular peritonitis.	.....	Recovered from operation and symptoms improved.	Yes.	Exploratory operation.	9, '91	Do.
19	32	Pyosalpinx, chronic salpingitis and ovaritis.	Pelvic peritonitis.	Recovery.	No.	Extensive adhesions.	10, 5, '91	Dr. Carr.
20	..	Pyosalpinx.	Gonorrhœa.	"	"	Tubes like sausages.	10, 15, '91	Columbia Hospital.
21	30	Blood cyst of ovary.	.....	Temporary relief.	Yes.	Patient did well for a time, then returned (see No. 78). One ovary not found.	10, 26, '91	Dr. Moran.
22	46	Fibro-myoma uteri, eighteen pounds.	Negress.	Died fifth day, shock; bowel obstruction, acute yellow atrophy of liver.	"	Ventro-fixation; myomata in both broad ligaments.	11, 9, '91	Columbia Hospital.
23	30	Pelvic abscess, many ounces of pus.	Gonorrhœa.	Died fifth day, uræmia.	"	No peritonitis after operation; nephritis from specific infection.	11, '91	I. S. S.

No.	Age.	Disease.	Cause.	Result.	Drainage.	Remarks.	Date.	Reference.
24	21	Pelvic abscess.	Gonorrhœa.	Recovery, sinus from ligature; afterward closed.	Yes.	Appendages and entire pelvis filled with pus.	11, '91	I. S. S.
25	35	"	"	Recovery.	"	Tumor nearly to umbilicus.	11, 30, '91	Do.
26	32	"	Abortion, infection.	Died twenty-four hours, shock.	"	.....	12, '91	Do.
27	34	Cyst of ovary.	.....	Recovery.	No.	Cyst filled pelvis; everywhere adherent.	1, 4, '92	Do.
28	30	Pyosalpinx.	Gonorrhœa.	"	"	Tubes like sausages; patient ill sixteen years.	1, 7, '92	Dr. Ritchie.
29	24	Hydrosalpinx.	"	"	"	Chronic pelvic peritonitis.	1, 18, '92	Columbia Hospital.
30	27	Pelvic abscess.	Abortion.	"	Yes.	Tumor-like fibroid of uterus to umbilicus.	2, 4, '92	Do.
31	40	Fifty-pound double ovarian tumor (multilocular broad lig. cyst).	.....	Recovery from operation.	"	In nine months abscess formed under broad ligament (see No. 74).	2, 8, '92	Do.
32	24	Pyosalpinx, tubo-ovarian abscess.	.....	Recovery.	"	Pelvic organs all adherent <i>en masse</i> .	2, 10, '92	Dr. Bowen.
33	25	Pyosalpinx.	Gonorrhœa.	"	No.	Easy operation and recovery.	2, 15, '92	Columbia Hospital.
34	19	Pelvic abscess.	Abortion.	Died.	Yes.	Shock, third day.	2, 17, '92	Do.
35	25	Pyosalpinx, menorrhagia.	.....	Recovered.	No.	Patient had uterus removed afterward for sarcoma (see No. 80).	2, 22, '92	Do.
36	36?	Insanity, cystic ovary.	.....	Recovered from operation easily; mental symptoms not improved.	"	Patient in asylum.	2, 24, '92	I. S. S.
37	40	Ascites.	Movable kidney.	Recovery.	Yes.	Movable kidney not suspected until abdomen was opened.	2, 24, '92	Columbia Hospital.
38	50	Dermoid cyst of ovary, twelve pounds.	.....	"	"	Cyst ruptured a month before operation, everywhere adherent; twisted pedicle; nephritis.	2, 27, '92	Dr. Frost.
39	23	Cystic ovaries, retroflexion and old salpingitis.	.....	"	No.	Operation very difficult, owing to adhesions.	2, 29, '92	Columbia Hospital.
40	..	Cystic ovaries.	.....	"	"	Ovaries size of hen's egg.	3, 2, '92	Do.
41	..	Fibro-myoma uteri, twenty pounds.	Negress.	Died third day, shock.	"	Extra-peritoneal method.	3, 5, '92	I. S. S.
42	27	Tubo-ovarian abscess.	Gonorrhœa.	Recovery.	Yes.	Bowel involved; fimbria adherent to intestine; necrosis.	3, 7, '92	Dr. C. G. Stone.
43	28	Myoma uteri, pyosalpinx (pus sacs removed).	Negress?	Recovered from operation.	No.	Patient had mania after operation; the tumor was not removable; patient died about a year later.	3, 19, '92	Dr. Gibson.
44	20	Prolapsus uteri and ovary.	Nullipara?	Improved.	"	Hysterorrhaphy.	3, 28, '92	Columbia Hospital.
45	..	Pelvic abscess.	Abortion, gonorrhœa.	Recovery.	Yes.	Omentum, bowel, appendages glued together and large quantity pus present.	4, 9, '92	Do.
46	40	Cyst of left kidney, forty-eight ounces.	Blood cyst.	"	"	First suspected sarcoma, but no recurrence; patient perfectly well; sutured sac to abdominal wall.	4, 16, '92	Do.
47	20	Pelvic abscess.	Puerperal septicæmia.	Recovery; patient insane for a time after return home.	"	The only fecal fistula in my first hundred cases; fistula closed spontaneously; patient well.	4, 20, '92	Dr. Ewing.
48	24	Pelvic abscess, from puncture or rupture of uterus.	Infection by midwife.	Recovery.	"	Intestinal necrosis; many sutures required; easy recovery after second day.	4, 30, '92	Dr. Moran.
49	38	Unsuspected septic uterine contents (abortion), cystic ovary removed.	Abortion, pyæmia.	Died thirty days.	No, not at first; afterward gauze.	The uterus was large, very pale, and soft, but did not know its contents at time of operation.	5, 7, '92	Dr. Smith.
50	..	Pyosalpinx, tubo-ovarian abscess.	Infection.	Recovered.	Yes.	Small fibroid removed from fundus uteri; infected sinus, afterward ligature removed.	5, 9, '92	Columbia Hospital.
51	40	Pelvic pain, uterine prolapse.	Cystic ovaries; relaxed ligaments.	Recovered from operation easily, improvement in health not well.	"	Chronic neurasthenia.	5, 11, '92	Dr. Nourse.
52	24	Pyosalpinx, cystic ovaries.	Gonorrhœa.	Recovered.	Yes.	.....	6, 11, '92	Columbia Hospital.
53	26	Pyosalpinx, tubo-ovarian abscess.	"	Recovery.	"	Several ounces of pus.	6, 15, '92	Do.

No.	Age.	Disease.	Cause.	Result.	Drainage.	Remarks.	Date.	Reference.
54	26	Fibro-myoma uteri size of large cocoon; nut, mental symptoms.	.....	Mind quite restored; tumor greatly lessened in size at present time.	No.	Salpingo-oophorectomy; easy operation and recovery.	6, 18, '92	I. S. S.
55	32	Tumor of gall-bladder size of large orange.	Gall stones.	Many stones found, sinus remained since closed.	Yes.	Patient returned, and further search for stones (4, 15, '93); cured.	6, 18, '92	Dr. C. G. Stone.
56	..	Retroflexion of uterus, pain and dyspareunia.	.....	Uterus in good position, not otherwise quite well.	No.	A cyst of ovary excised, sepsis of wound; no pelvic pain at present.	6, 11, '92	I. S. S.
57	45	Large myomatous tumor, 20 lbs., filling entire cavity; pregnancy, 4th month, not suspected.	Negress.	Died third day, hemorrhage from mesentery.	Yes, tube and gauze.	Complete extirpation; easily done save for attachments to mesentery, which were severely injured.	6, 29, '92	Columbia Hospital.
58	35	Sarcoma uteri, entire uterus involved; tumor nearly to umbilicus, five pounds.	Patient had an intra-uterine fibroid removed a year previous; recurrence eight months afterward.	Recovery without incident ten months since; better health than for years.	Yes, tube and gauze.	Complete extirpation of uterus, ovaries, etc.; patient has gained many pounds of flesh.	7, 13, '92	Dr. Ames.
59	..	Pyosalpinx, one fimbria attached to intestine; necrosis and danger of rupture; omentum necrotic and large amount of it removed.	Infection.	Recovery from operation, and last report quite well.	Yes, tube and gauze packing.	The tube had adhered to bowel as high as crest of ilium, six inches from cornua of uterus.	7, 20, '92	Dr. Smith.
60	60	Cancer of uterus.	.....	Recovery; bladder involved, afterward closed; well nearly one year after.	Yes, <i>per vaginam</i> .	The growth was not primarily of cervix, but of middle portion at and above the internal os.	7, 28, '92	Dr. Hicks.
61	23	Suspected hemorrhage, intra-abdominal.	Abortion.	Recovery without incident.	No.	Patient in collapse when brought in hospital; amount of blood very uncertain, hence the exploratory opening.	9, 1, '92	Columbia Hospital.
62	..	Intra-abdominal hemorrhage.	Suspected extra-uterine pregnancy.	Recovery.	Yes.	Abdomen distended with blood; no foetus found.	9, 3, '92	Do.
63	..	Old sinus, from infected ligature (see No. 50).	After removal of small fibroid ligature infected.	Sinus closed.	No.	.....	9, 10, '92	Do.
64	..	Suspected pyonephrosis or calculus of ureter, cystitis.	.....	Nothing found.	"	Patient had been an invalid, and hence the exploration.	9, '92	Do.
65	..	Pyosalpinx, tubo-ovarian abscess.	Infection.	Recovery.	Yes, gauze and glass tube.	Aristol over adhesions; perfect result.	9, 17, '92	Do.
66	23	Pyosalpinx.	Gonorrhoea.	"	Yes.	Normal recovery.	9, 22, '92	Do.
67	28	Pyemic abscess, limited to bowels and mesentery.	Abortion, sepsis.	Died third day.	"	Operation had no effect in minimizing sepsis; tubes not enlarged.	9, 24, '92	Dr. C. G. Stone.
68	32	Myoma uteri, twelve pounds.	Negress.	Recovered.	"	Complete extirpation.	10, 12, '92	Columbia Hospital.
69	32	Ovarian cyst, fifteen pounds.	.....	"	"	Multilocular cyst.	10, 8, '92	Dr. Walsh.
70	33	Pelvic abscess, size of cocoon; right tubo-ovarian abscess.	Puerperal septicaemia, eleven months since last child.	"	Yes, gauze and tube; much hemorrhage.	This case was in a morphia habitué; critically ill for a week after section.	10, 12, '92	Dr. Beaty.
71	33	Pelvic and ovarian pain, cystic ovary, right side, removed.	.....	Recovered from operation, symptoms just as before.	No.	Neurasthenic case.	10, 22, '92	Dr. Speiden.
72	..	Retroflexion, cystic ovary removed.	.....	Recovery.	"	Hysterorrhaphy, ovary prolapsed and held under the uterus.	10, 22, '92	Columbia Hospital.
73	..	Pelvic abscess, opened prior to operation.	Abortion.	"	Yes.	Disorganized appendages.	10, 26, '92	Do.
74	40?	Pelvic abscess, extra-peritoneal.	"Adenoid" growth below broad ligament.	Died two days, shock and sepsis.	"	See case No. 31. Had ovariectomy done, both broad ligaments removed.	10, 29, '92	Do.
75	39	Old salpingitis and ovaritis.	Pelvic peritonitis.	Recovery.	No.	Uneventful recovery.	11, 5, '92	Dr. Love.
76	19	Congenital displacement of ovaries, salpingitis.	.....	"	"	Batley operation; normal convalescence.	11, 5, '92	Columbia Hospital.
77	21	Pelvic abscess, septic peritonitis.	Abortion, sepsis.	Died, shock, third day.	Yes.	Should have merely washed out abdomen instead of completing operation (forty minutes).	11, '92	Do.

No.	Age.	Disease.	Cause.	Result.	Drainage.	Remarks.	Date.	Reference.
78	..	Blood cyst of ovary, transposition of viscera.	Pelvic peritonitis.	Recovered from operation.	Yes.	Appendix found on left side; general adhesions throughout pelvis, including intestines, uterus, bladder, etc.	11, 12, '92	Dr. Moran.
79	26	Suspected abdominal pregnancy, high temperature, hemorrhage from bowels, etc.	Relaxation of uterus gave effect of child floating in abdominal cavity.	All symptoms subsided; subsequent delivery <i>per vias naturales</i> .	No.	Temperature to 105° day before section; two discharges of blood from bowels; patient had been curetted and cervix closed since pregnancy suspected.	11, 13, '92	Dr. Walsh.
80	..	Uterine hemorrhage, sarcoma uteri, previous operation (see No. 35).	.....	Recovered from operation.	Yes.	Patient still has some vaginal hemorrhage. (Since the above, patient well.)	11, 17, '92	Columbia Hospital.
81	25	Procidencia, cysto-rectocele.	Excessive childbearing.	Perfect result.	No.	Hysterorrhaphy, ventro-fixation.	11, 19, '92	Do.
82	40	Pelvic abscess.	Infection?	Recovery.	Yes, gauze and tube.	Large amount of pus; perfect result.	12, 1, '92	Dr. Bovee.
83	..	Pyosalpinx, ovarian and pelvic abscess.	Gonorrhœa.	"	Tube and gauze.	Perfect result.	12, 3, '92	Columbia Hospital.
84	26	Pelvic peritonitis, pelvic abscess.	"	Patient very ill at time of operation; narrowly escaped death by shock, then quick recovery.	Gauze and tube.	Patient ill only two weeks since first attack of specific vaginitis.	12, '92	Do.
85	22	Pyosalpinx, tubo-ovarian abscess.	"	Recovery.	Yes.	Easy recovery; some doubt as to all of right tube having been found.	12, 28, '92	Do.
86	53	Procidencia, cysto-rectocele; ovarian cyst, six ounces.	.....	Slight return of cystocele.	"	Vaginal hysterectomy. This woman without sufficient intelligence to take care of herself.	1, 7, '93	Do.
87	65	Carcinoma uteri.	.....	Recovery from operation uneventful.	"	Negress, vaginal hysterectomy.	1, 14, '93	Dr. Hicks.
88	42	Tubo-ovarian abscess, opening into bowel; pelvic abscess.	Puerperal infection, twelve years since.	Recovery without incident.	Tube and gauze.	Opening into bowel found and sutured; large quantity of pus; aspirated, and sac enucleated.	1, 18, '93	I. S. S.
89	34	Inguinal hernia; previously operated upon in Chicago.	.....	Recovery.	No.	Radical cure; removal of sac and omentum; buried silk-worm sutures.	1, 28, '93	Columbia Hospital.
90	..	Sp. salpingitis; tubo-ovarian abscess.	Gonorrhœa.	"	Yes, tube and gauze.	Bowel severely involved; necrosis; perfect result.	1, 25, '93	Do.
91	26	Retroflexion, hydrosalpinx, cyst of ovary.	.....	Recovery after severe illness.	No.	Should have used drainage; patient had peritonitis; the ovarian cyst contained highly infectious serum.	1, 28, '93	Do.
92	35	Pelvic abscess, pelvic peritonitis.	Many abortions, repeated attacks of peritonitis.	Died three hours after completing operation.	.....	Patient could not take anesthetic satisfactorily; morphine habitué; operation done under many disadvantages; had long suffered from bowel obstruction, etc.	1, 28, '93	Dr. Pool.
93	39	Ovarian tumor; ascites, eighteen pounds; hydrothorax.	.....	Recovery from operation; dropsical symptoms not yet relieved; patient in fairly good health.	Yes, for three weeks.	Large left ovarian multilocular cyst; small right cyst thirty-two ounces; suspected malignant disease.	1, 30, '93	Columbia Hospital.
94	50	Procidencia, cysto-rectocele.	.....	Recovery.	No.	Hysterorrhaphy; ventro-fixation; buried silk-worm sutures.	2, 1, '93	Do.
95	15	Ovarian tumor, twenty pounds.	.....	Recovery uneventful.	Yes.	Twisted pedicle.	2, 5, '93	Dr. Batson.
96	33	Myoma uteri, four pounds.	Negress.	Recovery.	"	Complete extirpation by abdominal method.	2, 11, '93	Columbia Hospital.
97	32	Tubo-ovarian abscess, pyosalpinx.	Gonorrhœa.	"	"	.....	2, 16, '93	Dr. C. G. Stone.
98	35	Tubo-ovarian abscess, pyosalpinx.	"	"	"	Patient had been ill since first attack of gonorrhœa; result far better than expected; complete and satisfactory cure.	2, 20, '93	Columbia Hospital.
99	30	Retroflexion uteri, cystic right ovary.	.....	Died.	No.	Patient unexpectedly developed peritonitis and died; the cystic ovary may have infected the peritoneum.	.....	Do.
100	..	Retroflexion, salpingitis, ovaritis, etc.	Excessive childbearing.	Recovery.	"	Hysterorrhaphy; salpingo-oophorectomy.	.....	Do.

Summary.

	Cases.	Deaths.
Pelvic abscess.....	17	5
Extraperitoneal abscess.....	1	1
Pyæmic intra-abdominal abscess.....	1	1
Tubo-ovarian abscess.....	21	1
Pyosalpinx.....	6	..
Hydrosalpinx.....	2	..
Cystic ovary (pyæmic uterus).....	1	1
Cystic ovaries (infectious).....	3	..
Ovarian tumor.....	6	..
Myoma uteri.....	11	3
Hysterorrhaphy.....	7	1
Exploratory section.....	5	..
Inguinal hernia.....	1	..
Vaginal hysterectomy.....	4	..
Oophorectomy for uterine myoma.....	2	..
Old sinus.....	1	..
Cholelithotomy.....	1	..
Cyst of kidney.....	1	..
Nephrotomy.....	1	..
Extra-uterine pregnancy.....	1	1
Abdominal hæmorrhage.....	1	..
Batley's operation.....	5	..
Tubercular peritonitis.....	1	1
Total.....	100	15

THE CAUTERY IN STAPHYLOTOMY.*

By THOMAS AMORY DE BLOIS, M. D.,
BOSTON.

EVEN so small a subdivision as the uvula is worthy of some special study, although I believe its real utility has never been discovered, yet, like the vermiform appendix, it is unquestionably "there," seemingly unemployed except for evil.

As a complication of pharyngitis, it is, in its state of inflammation, or œdema, decidedly unpleasant; irritating the pharynx, acting as a kind of ball valve to shut off respiration, it makes its presence known constantly.

As the after result of many inflammations, as it hangs limp and flaccid in the pharynx, it is again neither useful nor ornamental.

Although I have never had the opportunity of seeing any of those historical cases of elongation of the uvula, in which it was so long that it could be caught between the front teeth during coughing, yet I have seen it sufficiently long to tickle the epiglottis.

And I take this opportunity of advancing the opinion that elongation of the uvula is a lesion of civilization. I have always held the belief that the "dude was catarrhal," and this is evidently coincided in by the caricaturists of the present day, great students of Nature, who usually depict him with mouth wide open, or else sucking his cane, a continuation of the infantile thumb, which we are told causes the high-arched palate and salient incisor teeth. If you will look back over your professional experience you will, I think, remember that your cases of amputation of the uvula have been generally among the better class of your patients rather than the poorer ones. Thus during a winter's hospital practice of six months I only saw one case (which did not belong there) where operation was indicated,

whereas I might report half a dozen from my office practice—and I did not remove the uvula many times when I should have done so.

The uvula may to a certain extent be toned up and retracted by astringents, faradization, etc.; but if the trouble has been of long standing, removal of a part of the body is certainly indicated. The little operation is certainly one of the simplest, but, as whatever we do had better be done well, I would like to recite to you a little procedure which I have made use of during last winter, not that I suppose it original (for "there is no new thing under the sun").

Troublesome hæmorrhage after amputation, such as our late fellow Dr. Morgan once reported, is very rarely met with; but after snipping with the knife or scissors there sometimes is a quite persistent oozing, which will keep up in spite of all the ice or astringents you can put there. Then, again, the uvula may be very thick and large and would seem to indicate large vessels, a good deal of muscle, and more after-sloughing than one cares for. It was just such a condition of things as this which induced me to operate on A. B., on December 6th, with the galvanocautery.

Many applications with a twenty-per-cent. solution of cocaine were first made until the part had become blanched and was apparently anesthetized; then, placing a tongue depressor on the tongue and giving it to the patient to hold, I passed a fixed loop of platinum wire around the uvula rather high up, for I observed that the cocaine had retracted it.

As soon as the cautery was felt on the posterior surface of the uvula it was drawn tight by the palate muscles, and by pulling in an opposite direction with a forceps I was enabled to bevel the cut very nicely, so that when the wound healed it was well "tapered" and was more of a work of art than the "clubbed" stump which we see after clipping with the scissors. This first patient was a preacher, and his trouble may have been the sequence of ministers' sore throat.

CASE II was that of a lawyer, B. C., on December 17th. He not only talked but smoked; he was something of an athlete, but not robust. I used the cautery with him because I had had a good result with Case I. The procedure was the same. The patient complained of very little pain, but there was the same reflex contraction of the palate. The result was better than before.

CASE III was that of a shopkeeper, on January 30th. This man did not smoke, but used his voice in his business a great deal more than necessary; his uvula was very "dejected." The weather was cold, and I had unfortunately discovered that my gravity battery was useless in cold weather. I therefore had to use a small primary battery and a much smaller loop than before. My current was poor and I had to stop and cocaineize after I had cut through the mucous membrane.

As before, I tapered from back forward, and from the sides toward the point. The result was good; the recovery not delayed.

CASE IV.—I will only weary you with one more case, that of Mr. C. D., a French restaurateur, on February 2d. This was a case of peculiar formation; there appeared to be a kind of permanent erection to the uvula so that it stuck directly to the front; then it twisted to one side with a kind of curl in it like a pug dog's tail. It was difficult to cut properly, and after I had burned through this huge, thick uvula I found that I had beveled the anterior instead of the posterior aspect.

The result after healing was quite good, and I presume that

* Read before the American Laryngological Association at its fifteenth annual congress.

the flavoring of his ragouts went on as well as before. His pharyngitis certainly went on better.

These were done with the fixed loop. Had they been cut with the galvanic snare (which winds on a reel) the cut would of necessity have had a straight surface and not a continuous bevel.

It seems almost puerile to waste so much time on so small a subject, but the artistic stump is well worth the extra trouble.

A NEW OPERATION FOR THE RADICAL CURE OF OBSTRUCTION OF THE NASAL DUCT.

By GEORGE W. CALDWELL, M. D.,
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THE passage of too large lacrymal probes is doubtless responsible for many cases of complete bony closure of the nasal duct. The repeated bruising and lacerating of the periosteum lining the canal results in formative periostitis, and in ivory-like exostoses which finally close the canal permanently. In others, contracting cicatrices form a dense fibrous structure which readily closes after each dilatation. Bony obstructions from fracture of the superior maxilla are occasionally met. In these and in other cases where it is impracticable to pass the probe into the nasal space it has been the custom to obliterate the sac and duct by the galvano-cautery or chemical caustics, or by extirpation with the knife, after which drainage from the conjunctival sac must, of course, pass over the face. This is very troublesome to the patient and sometimes excites an eczematous condition which is very difficult to heal under the continued irritation.

It is possible to avoid these complications, and to restore the function of the nasal duct by the operation described in the following case :

J. D. H., aged thirty-five years, appeared at my clinic with dacryo-cystitis and epiphora of three years' standing. In the acute stage the lower canaliculus had been slit and large probes passed at intervals. Since then he has attended different clinics and received the usual treatment of syringing and probing. At length probes could no longer be passed and the destruction of the lacrymal sac was advised. To this, however, he declined to submit. I found complete bony closure of the nasal duct in its lower portion and operated in the following manner, after producing cocaine anesthesia of the nasal duct and the middle meatus of the nose.

The author's lacrymal probe (see *New York Medical Journal*, May 27, 1893) was passed as far as the obstruction and left *in situ*. By means of the electric trephine the anterior tip of the inferior turbinated body was removed as far up as the opening of the nasal duct, when, by cautiously continuing the operation upward, removing the nasal wall of the nasal duct together with the ivory-like new formation, the tip of the probe was reached, establishing again free drainage for the lacrymal sac. The relief of epiphora was immediate, and under antiseptic irrigations semi-weekly the blennorrhoea of the sac rapidly subsided and the wound healed kindly. Six months after the operation the patient reported for examination. The drainage was good. The sac had returned to a healthy condition and the patient considered himself cured.

60 WEST THIRTY-FIFTH STREET.

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THE SANITARY MANAGEMENT OF "SUSCEPTIBLE" MERCHANDISE.

THE British Government has recently published a document entitled *Correspondence respecting the Sanitary Convention signed at Dresden on April 15, 1893*. It seems that under the convention the term "susceptible"—i. e., susceptible of contamination with infectious material—is of very limited application. It relates only to articles of clothing and bedding that have been in use and to such "rags" as the French call *chiffons* and *drilles*. It was decided that "rags" sent in bulk and under the customary conditions applying to them as an article of merchandise should not be deemed "susceptible," and should therefore be free from all restrictions. The same exemption was made to apply to clean clippings and various similar articles, also to woolen rags known to the trade as *Kunstwolle* and shoddy. It is stated that in the interchanges of views that took place at numerous discussions in committee, in subcommittee, and in more informal gatherings the leading sanitarians present, including Professor Koch, Professor Brouardel, and Professor Proust, were all of the opinion that in no case had cholera been traced to "rags" in their exempted form, and that the risk of their conveying the infection of cholera was so remote as to justify the exemptions specified.

It was further decided that the transit through a country even of merchandise classified as "susceptible" must not be prevented if the goods had been so packed that they could not be handled on the way; that merchandise ought not to be prevented from entering a country even if it had passed through an infected district, provided it had been so conveyed as to avoid contact with infected things; that no merchandise should be subject to restrictions if it could be shown that it had been dispatched from an infected country not later than five days before the beginning of an epidemic; and that no merchandise ought to be retained in quarantine at land frontiers.

The "rags" and similar goods that are exempted are: 1. Rags compressed by hydraulic force, transported as wholesale merchandise in bales surrounded by iron bands, with marks and numbers showing their origin and accepted as such by the authorities of the country of destination. 2. Clean clippings (*déchets neufs*) coming directly from spinning, weaving, making up, or bleaching establishments, artificial wool (*Kunstwolle*, shoddy), and fresh paper shavings.

Disinfection is to be applied only to such merchandise and goods as the local sanitary authorities may consider contaminated and to such merchandise and goods as might otherwise be prohibited from importation. The authorities of the country of destination are to settle the mode and place of disinfection,

but it must be carried out in such a manner as to damage goods as little as possible. It is left to each country to settle the question of compensation for damage due to disinfection. Letters and correspondence, printed matter, books, newspapers, business documents, etc. (not including postal parcels), are not subject to any restriction or disinfection.

MINOR PARAGRAPHS.

CEREBRAL LOCALIZATION IN THE EIGHTEENTH CENTURY.

DR. FARABEUF quoted in the *Gazette hebdomadaire de médecine et de chirurgie* for July 9th an interesting passage contained in a volume based on observations made in Vienna between 1746 and 1750 by Joseph Baader, professor at Freiburg. The work is entitled *Observationes medicae, incisionibus cadaverum anatomicis illustratae*. The passage reads, translated, "If we now carefully compare the lesions found on the cadaver with the symptoms noted during life, we are able to deduce three facts of value in medical practice. Primarily, the elements and the action of the brain undergo deossation, thus the sensation and motion of one side of the body are dependent upon the action of the opposite cerebral hemisphere; the contrary is also true. How if a patient suffers on the right side of the head, and an abscess forms on that side, the hyperæsthesia and the convulsions always affect the left arm. In the second place, it becomes evident to us that from numerous observations collected with care and attentively compared we are able to determine and indicate, to the great advantage of practitioners, what portion of the brain controls the sensibility and motion of this or that member; in other words, knowing the member affected, we may determine what portion of the brain is diseased, and, inversely, being given a determined lesion of the brain, we may predict the member that will be affected. Thus in one patient the pain and abscess were situated under the right parietal bone, and the convulsions affected the left arm. Then in observation XXV, a young man having paralysis and contractures of the right side had two tubercles of the dura mater beneath the parietal bone, and in the left cerebral hemisphere between the anterior and middle lobes there were hydatids, or better "plagmatides." Perhaps after comparing many such observations we should be able to conclude with certainty that the region of the brain located beneath the parietal bone controlled the mobility and sensibility of the upper extremity of the opposite side."

THE VALUE OF EXPERIMENTAL TUBERCULOSIS IN DIAGNOSIS.

THE *British Medical Journal* for September 23d contains a valuable paper by Professor Sheridan Delépine, in which he reports the results of his investigations of Villemin's method of subcutaneous inoculation of tuberculous matter as a means of diagnosis. Villemin's careful studies, that were published in 1865, showed that his method was capable of giving most definite and reliable results within a short time. Vernil and Clado, in a paper read before the Congress for the Study of Tuberculosis held in 1888, showed that the space of time was shorter than was generally supposed to be necessary; Professor Delépine confirms this. He calls attention to the fact that hunting for the tubercle bacillus in specimens in which the bacilli are scanty is a long, tedious, and discouraging search. Moreover, a negative result where the clinical symptoms point distinctly to a tubercular process is likely to make one disregard

the results of the microscopical examination. He has found that products containing even a small number of tubercle bacilli will, when inoculated under the skin of the inner aspect of the leg of a guinea-pig at the level of the knee, cause tuberculosis of a certain number of organs in the following order: During the second week, of the lymph nodes on the same side of the body below the diaphragm and the spleen; during the third week, of the liver and of the mediastinal and bronchial ganglia; during the fourth week, of the lungs and of the cervical and axillary ganglia; after the fourth week, gradual infection of the lymph nodes of the opposite side of the body below the diaphragm. He concludes that the inoculation method is a diagnostic measure capable of giving results that are free from any ambiguity, and that the negative results that may be obtained by it are nearly as valuable as the positive results, while the latter give more definite information than the discovery of the *Bacillus tuberculosis* in the matter examined. Results should easily be obtained within two or three weeks after inoculation.

THE LATE SURGEON-MAJOR PARKE.

As a memorial to this distinguished Irishman it has been decided to erect a masonic hall in Carrick-on-Shannon, Ireland, to be entitled the Parke Memorial Hall. In a recent notice in this *Journal* his age was stated to be about forty years, but he was less than that—viz., thirty-five. The British Government treated him very badly, and his promotion to the rank of surgeon major he was entitled to from length of service, not as a mark of favor. While a student in Dublin he attended the medical school of the Royal College of Surgeons and the City of Dublin Hospital. A movement is on foot to erect a memorial window in Ballybay Church, in a district where Dr. Parke acted for some time as medical officer. The subscription, which is a nominal one, is confined to members of the medical profession. On the 9th inst. a meeting was held in the Shelbourne Hotel, Dublin, for the purpose of appointing a committee and opening a fund in order to carry out a generally expressed wish that a memorial should be erected in honor of the late Surgeon-Major Parke. Sir George Porter, Bart., moved that, in view of the conspicuous services of the deceased gentleman, it was desirable that a permanent memorial be raised to perpetuate his name and his life work. What form the memorial will take has not at present been determined on, and the matter has been left open. Mr. H. M. Stanley has contributed £50 toward the memorial.

THE ORIGIN OF CIRCUMCISION.

La Médecine moderne states that at a recent session of the Paris Society of Anthropology the question of the origin of circumcision was discussed. M. Letourneau recalled the custom of the Egyptians of practicing phallootomy on the vanquished. This custom still persists in our day among the Abyssinians. Every warrior who has killed an enemy, says James Bruce, presents to the chief a bloody prepucce. The ceremony being concluded, each warrior gets back his bloody trophy, and, taking it home with him, prepares it in the same fashion the Indians employ for scalps. This custom existed among the Hebrews, and to become the son-in-law of Saul David had to bring in the foreskins of a hundred Philistines. Ritual circumcision is thus derived, and was an act of homage to God. The usage of offering portions of the body to the gods has been and is yet very widespread. It is a symbol of a complete sacrifice that has become partial by the lessening rigor of morals. It is thus that blood or the fingers were offered, or the sacrifice of their hair, by the early Christians.

A HOSPITAL NEEDED.

THAT great and ancient city, Damascus, has no hospital for its population of nearly two hundred thousand souls. A successful dispensary has been conducted by the Edinburgh Medical Missionary Society since 1887. It is at present under the charge of Dr. Mackinnon and Dr. Scott Smith. These gentlemen have an Imperial firman granting them power to proceed unmolested in their work and to erect a hospital. The movement is in an initial stage, and the dearth of vacant houses makes the choice of a situation very difficult. If they are obliged to buy land and erect a hospital for sixty patients, together with a dispensary, they estimate that \$25,000 will be required. There is an old saying that where the Englishman would build a fort the Frenchman will erect a theater and the Spaniard a monastery. To this we are tempted to add: and the Scotchman a hospital.

MORE NEWSPAPER MEDICINE.

ONE of the New York newspapers lately gave prominence to a most imaginative article on disease of the vermiform appendix. The writer took the position that operations for that disease were done with unnecessary frequency, and cited a case in which an individual affected with it had declined surgical interference and had ultimately *coughed up* his appendix.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 17, 1893:

DISEASES.	Week ending Oct. 10.		Week ending Oct. 17.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	59	11	32	16
Scarlet fever.....	58	3	41	6
Cerebro-spinal meningitis..	3	3	2	2
Measles.....	53	2	63	3
Diphtheria.....	112	34	129	18
Small-pox.....	13	2	20	3

A Warning.—The publishers of this *Journal* request us to warn our readers against a man who sometimes calls himself "E. E. Evans," and who pretends to be the representative of a Chicago company through which, as he avers, he can furnish periodicals at reduced rates. Although the alleged "company" exists only in the imagination of this individual, he has beguiled several of our subscribers into paying money to him on account of the *Journal*, with which he has no connection and for which he is not authorized to collect or obtain subscriptions. All authorized collectors and canvassers for the *Journal* have credentials by which to identify themselves.

The Wayne County (Michigan) Medical Society.—At the recent annual meeting the following officers were elected for the ensuing year: President, Dr. Hal. C. Wyman; vice-president, Dr. E. B. Smith; secretary, Dr. R. H. Honner; treasurer, Dr. C. Henri Leonard; board of directors, Dr. J. E. Clark, Dr. E. W. Jenks, Dr. James Newell, Dr. J. E. Westgate, and Dr. K. Gunsulus.

The Maryland Medical Journal.—Dr. A. K. Bond has resigned the editorship, owing to the demands of his private interests. His connection with that journal, dating from May,

1891, has been marked by ability, dignity, and a progressive spirit. The name of his successor has not been announced.

The Muetter Lectures.—This year's course, on Tuesday evenings from the 17th inst. to December 19th, is to be given by Dr. De Forest Willard, on The Surgical Pathology and Surgery of the Spinal Cord, the Vertebrae, and the Peripheral Nerves.

The Clinical Society of the Elizabeth (New Jersey) General Hospital and Dispensary held its first meeting on Tuesday evening, the 10th inst., and is to hold its meetings on the second Tuesday of each month. Officers have been elected as follows: President, Dr. Victor Mravlag; vice-president, Dr. Alonzo Pettit; secretary, Dr. Norton L. Wilson; treasurer, Dr. E. B. Grier.

The Richmond Academy of Medicine and Surgery.—The special order for the next meeting, on Tuesday evening, the 24th inst., is a discussion on Cerebro-spinal Meningitis, to be opened by Dr. Landon B. Edwards.

Changes of Address.—Dr. Pearce Bailey, to No. 50 East Thirty-first Street; Dr. Hersey Goodwin Locke, to No. 2 West Forty-third Street.

The late Dr. Elijah A. Maxwell.—The Medical Board of Randall's Island Hospital hear with great sorrow of the loss of their associate, Dr. Elijah A. Maxwell. He was for many years a member of this board. Of affable and pleasant manners, he was a warm friend and wise counselor. Therefore, be it

Resolved, That in his untimely death we have lost our most beloved associate, and a break is made in our number which can not be filled. His memory will ever remain among the most pleasant of our lives and will inspire us with an ideal of professional and manly excellence toward which it would be well for us to shape our future lives.

Resolved, That the loss we mourn is not limited to this board, but is shared by the medical profession as a whole.

Resolved, That to his family we tender our warmest sympathy. And be it also

Resolved, That a copy of these resolutions be sent to his family, a copy entered on the minutes of the medical board, and also a copy sent to the medical press.

EDWARD WAITZFELDER, M. D.,
[Signed.] WALDRON B. VANDERPOEL, M. D., } *Committee.*

The Death of Dr. Charles Slover Allen, from typhoid fever, took place in the Presbyterian Hospital on Sunday, the 15th inst. The deceased was a graduate of the Bellevue Hospital Medical College, of the class of 1881.

The Death of Dr. Edward Warren (Bey) occurred at Paris, France, about September 15th. He was a North Carolinian by birth, and was surgeon general of the Confederate corps under General Joseph E. Johnston. He was a practitioner in Baltimore after the late war, and became prominent by reason of his connection with the Wharton case of poisoning, in which his testimony was largely influential in bringing about the acquittal of the accused. Dr. Warren was at that time one of the faculty of the Washington Medical University at Baltimore and of the College of Physicians and Surgeons, in the same city. He afterward took office under the Khedive of Egypt and rose to the rank of surgeon in chief of the Egyptian army. The later years of his life were spent in Paris. He published his personal memoirs in a volume, *A Doctor's Experience in Three Continents*. His contributions to the American medical journals were meritorious. The subjects were largely

surgical. He occupied the surgical chairs in the Baltimore schools above mentioned, and held the chairmanship in surgery of the American Medical Association in 1872. He received the title of Bey from the Khedive in 1882, and was the recipient of knightly honors from at least two other sources. He was in his sixty-sixth year.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 8 to October 14, 1893:*

IRELAND, MERRITT W., First Lieutenant and Assistant Surgeon, Fort Apache, Arizona Territory, is granted leave of absence for one month, to take effect about the 20th inst.

MC CREERY, GEORGE, Captain and Assistant Surgeon, Fort Sidney, Nebraska, is granted leave of absence for one month, to take effect on or about October 15th.

SMITH, ALLEN M., First Lieutenant and Assistant Surgeon, will proceed without delay to Fort Missoula, Montana, and report to the commanding officer of that post for temporary duty, to enable CROSBY, WILLIAM D., Captain and Assistant Surgeon, to take advantage of the leave of absence granted him.

DE SHON, GEORGE D., First Lieutenant and Assistant Surgeon, is relieved from first duty pertaining to the medical section of the War Department Exhibit, World's Columbian Exposition, Chicago, Ill., and will return to his proper station, Fort D. A. Russell, Wyoming.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending October 14, 1893:*

COOKE, GEORGE H., Medical Inspector. Detached from Navy Yard, League Island, Pa., and assigned to special duty at Philadelphia, Pa.

DEER, E. Z., Surgeon. Ordered to Navy Yard, League Island, Pa.

MACKIE, B. S., Surgeon. Detached from duty in Philadelphia, Pa., and to wait orders.

Society Meetings for the Coming Week:

MONDAY, *October 23d*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *October 24th*: New York Dermatological Society; Buffalo Obstetrical Society; Medical Society of the County of Putnam (quarterly), N. Y.; Richmond, Va., Academy of Medicine and Surgery.

WEDNESDAY, *October 25th*: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Albany, N. Y., City Medical Association; Medical Society of the County of Albany; Berkshire, Mass. (Pittsfield), and Middlesex, Mass., North (Lowell) District Medical Societies; Gloucester, N. J. (quarterly), County Medical Society; Philadelphia County Medical Society.

THURSDAY, *October 26th*: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); Massachusetts Medical Benevolent Society (annual—Boston).

FRIDAY, *October 27th*: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *October 28th*: New York Medical and Surgical Society (private).

Letters to the Editor.

ATHETOSIS.

NEW YORK, *October 9, 1893.*

To the Editor of the New York Medical Journal:

SIR: In your issue of October 7th I note the description of a case of post-hemiplegic athetosis, with illustrations, by Dr. McGillicuddy. Among other things, the doctor says: "It is certainly a rare and interesting condition." Interesting it undoubtedly is, but I should feel it wrong to let the statement as to its rarity go unchallenged. It is not at all a rare nervous affection, and, were neurologists to publish the histories of their cases of post-hemiplegic athetosis with illustrations, the medical press would be deluged and there would be space for little else. Now it never occurred to me to publish an account of the case of M. S., described by the doctor in his article, although she was for several years after he saw her a patient of mine in the New York Hospital for Nervous Diseases on Blackwell's Island. I did make use of the facts in her case to swell the statistics of one hundred and forty-one cases in a paper by Sachs and myself, on The Infantile Cerebral Palsies, published in the *Journal of Nervous and Mental Disease* for May, 1890. Athetosis existed in twenty per cent. of our cases. I have recently had occasion to study carefully the details of two hundred and fifty cases of infantile cerebral palsy observed by myself at the Polyclinic, at the Vanderbilt Clinic, and in Blackwell's Island institutions. Athetosis existed in about twenty per cent. of all the cases of hemiplegia. I think it therefore proper to correct the impression which might be conveyed by the doctor's article that this is an unusual phenomenon. In the last part of his short paper he makes the additional observation that "It is extremely rare in children." The fact is that post-hemiplegic athetosis is much more frequent in the hemiplegias of childhood than in those of adult life.

FREDERICK PETERSON, M. D.

Proceedings of Societies.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Nineteenth Annual Meeting, held in Indianapolis on Wednesday, Thursday, and Friday, October 4, 5, and 6, 1893.

The President, Dr. R. STANSBURY SUTTON, of Pittsburgh, in the Chair.

Fibroid Tumors of the Uterus.—This was the subject of the President's address. After giving a definition of these tumors, the author dwelt upon their etiology, which he said was still a mystery. They were more frequent in the black than in the white race. In both races they were more frequent in the body than in the neck of the uterus, and more frequently situated in the posterior than in the anterior wall. After the menopause was established these tumors generally disappeared, unless they had undergone cystic degeneration. Bearing on this point the President reported an anomalous case. The patient was forty-three years of age; she had never menstruated in her life, had never shown any physiological evidence of ovulation, had been twice

married, and was then a widow and childless. She had for ten years had a large fibromyoma of the uterus, which thus far had given no evidence of atrophy.

With regard to the pathology, the tumor always had its origin in the substance of the uterine wall or in the subperitoneal connective tissue.

The symptoms accompanying the presence of these tumors in various localities and stages of growth were widely different. However, there were vague pain in the pelvic region; pain referred to the front or back of the leg; irritability of the bladder or rectum; uterine tenesmus; menorrhagia or metrorrhagia; dysmenorrhœa; profuse leucorrhœa; and a serous discharge from the uterus. The diagnosis of very small fibromyomata, when many of the leading symptoms were absent, was considered extremely difficult.

So far as the medical treatment was concerned, but little could be done for the relief of patients suffering from fibromyomata, and nothing for those suffering from tumors that had undergone cystic degeneration. Surgically, there were but two routes by which solid uterine tumors could be removed—the vagina and the abdominal wall. With the exception of small tumors with a well-defined pedicle, all subperitoneal fibromyomata could be reached only by section of the abdominal wall. The President had in one case divided the posterior wall of the vagina and through this opening removed the tumor.

SECTION IN GENERAL MEDICINE.

Dr. O. EVERTS, of College Hill, Ohio, Chairman.

Forensic Medicine.—This paper was read by Dr. C. G. COMEGS, of Cincinnati. The author had come to the conclusion, from his experience, that there were but few lawyers sufficiently informed in medical science to conduct a case in the interests of truth and justice, especially the most important cases in medical jurisprudence. Every physician, as an expert witness, must have observed the embarrassment of lawyers in trying medical cases. They asked questions enough, but, from their lack of medical experience, they were incapable of thoroughly understanding the answers of a witness, so that the proper interpretation of them bearing upon the history of a case at the bar might be reached, and, when endeavoring to give the court and jury clear views of the subject by additional questions, they often confused the whole investigation. This disagreeable state of affairs was usually brought about by certain lawyers who had armed themselves by a superficial study of medical works for the occasion. Dr. Comegs believed that the high order of legal men would welcome well-trained men in medicine as coadjutors in the lofty work of establishing justice.

Problems of Public Interest concerning the Insane.—In a paper thus entitled Dr. ORPHEUS EVERTS, of College Hill, Ohio, said there were several problems of public interest involved in the present relations of society to the insane. Among the more important of them were questions of dependency and curability of the insane and the preventability of insanity. The author summarized his conclusions as follows:

1. Intelligent provision for the insane implies provision for various classes, according to the capabilities of enjoyment and the exercise of variously impaired faculties.

2. Public provision for whatever class of insane persons implies housing, clothing, food, sanitary and moral discipline, amusement and employment for such as are capable of being amused and employed, and medical treatment for the sick. The essential features of such provision are adaptability to the needs of each distinctive class.

3. Great, expensive, architecturally imposing palaces, providing alike for all classes, however serviceable they may have

been, æsthetically considered, in times past, as they unquestionably were, are no longer necessary or appropriate to the needs indicated. So long as the insane are comfortably housed, each class according to its condition, it is comparatively unimportant whether it be in large or small houses, cottages, or palaces, connected or detached, in high or low buildings.

4. It is important that the insane of all classes be well fed under careful supervision; but whether in small or large dining rooms, by groups or congregations, is of little consequence; it should be a matter of convenience rather than of number.

5. It is important that public institutions for the insane be well organized and administered.

6. It is wise to retain in office capable men, who have demonstrated their fitness by successful management of affairs, so long as their capabilities continue to be elastic.

Chorea in its Relation to Rheumatism.—This paper was contributed by Dr. I. N. LOVE, of St. Louis. The author said that recently the pathology of this disease had been cleared up to a very considerable degree. It was a definite affection and one especially incident to childhood. The author reported a case of chorea occurring in his practice with a marked history of rheumatism, one of ten cases illustrative of this class observed by him. The cases had not occurred successively. Between them other cases had presented themselves lacking the rheumatic history, but four of the number had occurred in rapid succession, with a pronounced rheumatic history. Seven of the patients had been girls.

Among the exciting causes of the disease were irritation in the nostrils and adenoid growths in the vault of the pharynx, inasmuch as Kirkes, Tuckwell, Hughlings Jackson, and Bastian had supported the embolic theory of the disease, and in consideration of the fact that chorea was so frequently associated with endocarditis, we should be on the alert to interrogate the heart when called to a case of chorea. As matters now stood, we had numerous exciting causes resulting in chorea.

Chorea, its Pathology and Treatment.—This paper was contributed by Dr. H. M. LASH, of Indianapolis. So much uncertainty had existed regarding the pathology of chorea that its treatment had been varied and widely different in its character and aims, amounting even to empiricism. The author then gave the causes of chorea as laid down in the recent work on nervous diseases by Dr. Landon Carter Gray. He referred to the repeated experiments of Dr. H. C. Wood, who had announced his conviction that the choreic movements had their origin in the spinal cord and were directly due to paralysis or depression of the inhibitory function of the cells. Acting on the strength of this conviction, Dr. Wood had sought for a remedy that would strengthen the proper function of these cells, and he had found it in quinine.

Dr. Lash then reported a case of acute chorea in a boy thirteen years of age. The choreic movements had been constant, general, and pronounced. It was agreed to try Dr. Wood's suggestion, and so the patient was put on full doses of quinine. Twenty grains a day, in four doses, were given him for three days, when he showed considerable improvement. The quinine was increased to twenty-five grains a day and given in that amount for three days more, when the patient again reported. There were no remaining symptoms of the chorea, and the quinine was gradually withdrawn. The patient had remained entirely free from the trouble ever since, and without any subsequent treatment of any kind. Another similar case with a successful result was reported.

Diphtheria; its Specific Diagnosis.—This was the title of a paper read by Dr. J. C. CULBERTSON, of Cincinnati. The author said that this disease was of peculiar interest because of its treacherous and insidious character. The uncertainty of diag-

nosis had caused some excellent practitioners to adopt the pernicious habit of diagnosing and treating all cases of sore throat, whether simple or malignant, as if they were true diphtheria. True, the treatment designed for a diphtheria might cure a quinsy, but inestimable harm might be done by causing unnecessary alarm on the part of the patient's family, together with the inconvenience that accompanied isolation of the patient and quarantining of the family, to be followed by the mockery of disinfection of non-infected apartments, and perhaps destruction of clothing and furniture. On the other hand, a case of diphtheria diagnosed as one of amygdalitis might be the cause of breaking up a school or producing an epidemic, with an indefinite amount of sickness and many deaths. A case was cited in point.

Dr. Culbertson then referred to the importance of utilizing the science of bacteriology, and mentioned the plan adopted by the New York City Board of Health of having undertaken to make bacteriological examinations for all practitioners of medicine in that city free of charge.

A Treatment giving a Low Death-rate in Cases of Diphtheria in Hospital and Private Practice.—Dr. WILLIAM A. GALLOWAY, of Xenia, Ohio, read this paper. The paper embraced reports from private practice of physicians who had given the treatment faithful trial during the past three years, who had unhesitatingly commended its value and had all been able to show a death-rate below ten per cent. Immediately the nature of the disease was suspected, the writer gave a grain of calomel for each year of the patient's age up to eighteen, repeated the dose in from four to six hours, and met the action of the mercurial with copious hot-water injections. This treatment was persisted in until the full action of the calomel on the liver and kidneys was obtained, relieving these two important excretory organs of the paretic condition caused by the absorption of the toxalbumin product of the Klebs-Loeffler bacillus. Improvement in the patient's appearance was immediate when the mercurials acted freely. The quantity of foul-smelling grass-green dejecta resulting was astounding. There was no fear of salivation, as under the most heroic use of mercurials no symptom of salivation had been observed by the writer or his friends. Internally, corrosive sublimate was given up to one eightieth of a grain, with full doses of tincture of chloride of iron and alcohol hourly at night and during the day. The topical treatment consisted of the use of peroxide of hydrogen for cleansing the throat, while as an escharotic a solution of twelve grains of salicylic acid in a drachm of alcohol might be used twice a day by the physician only. It had proved of great value in the writer's hands. This escharotic was very powerful and should be used carefully.

The Study of a Fatal Case of Essential Tachycardia was the title of a paper by Dr. JOHN C. SEXTON, of Rushville, Indiana, in which he detailed the symptoms and clinical features of a case of essential tachycardia in which the patient had died after thirty-five days' illness. A peculiar feature of the case had been the response to manipulative efforts, electrical and others, to produce stimulation of the pneumogastric nerve and thus to slow the heart. The paper then reviewed the ordinary symptoms of heart hurry as presented in the literature of the subject, and some further remarks were made concerning the causation, symptomatology, and treatment.

The Address in General Medicine was delivered by Dr. JAMES F. HIBBERD, of Richmond, Indiana. His conclusions were: 1. There is rapid progress being made in preventive medicine. 2. Our present conception of the complicated organization of the human body is based on the theory that the Creator in the beginning endowed vitalized matter with a perpetual law by virtue of which man has been developed, step by

step, from primitive protoplasm. 3. There is no longer an element of doubt in the proposition that the cell is the unit of vital activity, or that all living beings are a single cell or an organization of cells and cell products. 4. The influence of the mind on vital activities, normal and abnormal, is not recognized as it should be, and there is a line of study that would, if properly pursued, dissolve the agnosticism that has in the past embarrassed a knowledge of the reciprocal relations of matter and mind.

(To be continued.)

NEW YORK STATE MEDICAL ASSOCIATION.

Tenth Annual Meeting, held in New York on Monday, Tuesday, Wednesday, and Thursday, October 9, 10, 11, and 12, 1893.

The President, Dr. S. B. WYLIE McLEOD, in the Chair.

The President's Address.—Reviewing the work of the past ten years, the President said that, out of 476 dissertations read before the association, 181 had been on surgery, 153 on medicine, 72 on obstetrics and gynecology, 24 on pathology, 15 on materia medica, 10 on insanity, 8 on ophthalmology, 6 on state medicine, 4 on hygiene, 2 on physiology, and 1 on toxicology. The association had been organized so recently as in 1884, yet it now had a membership of eight hundred and a library containing over nine thousand volumes.

The Association's First Decade.—Dr. JOHN SHREAY, of New York County, followed with an address in which he took up in detail the work of the association during its first decade. He called attention to the fact that a marked feature had been the introduction of prepared discussions—a plan instituted by the British Medical Association and now adopted by many of the more prominent medical organizations. The first discussion of this kind before the association had been suggested by the late Dr. Flint, and it had been on pneumonia. Among the more interesting contributions referred to by the speaker may be mentioned a paper in which was cited the history of what was said to have been the first case of nitrous-oxide anesthesia. The date was given as November 25, 1821, and the subject was said to have been a young man who secretly inhaled a large quantity of the gas from a tank in a room adjoining one in which an exhibition of its properties was being given. Attention was also directed to the learned address by Dr. John W. S. Gouley, of New York, on The Nosology of Disease. Another important paper, on account of its bearing upon the public health, was one by Dr. James G. Porteous, of Dutchess County, entitled Winter Cholera. In this paper it had been shown that the prevalence of this disease in Poughkeepsie was due to the contaminated river water supplied to the town. The author had included some interesting bacteriological examinations of water made by Dr. E. K. Dunham, of New York, and had predicted that in the near future Hudson River towns would have to find some other water supply than that of the river.

The Prevention of Disease was the title of a paper by Dr. JAMES G. PORTEOUS, of Dutchess County. He laid special stress on the diffusion of a better knowledge of the various ways in which tuberculosis was spread, and of the methods best suited to prevent its dissemination. He exhibited a printed card which he distributed to his consumptive patients, which served as a reminder to them and their friends. The patient was directed to spit into a cup or wide-mouthed bottle containing a little carbolic acid and water. This was to be frequently washed out with hot water. The patients were cautioned against spitting on the floor, in the street, or in public conveyances, and against kissing people, and were advised to use individual table utensils, to sleep alone in an airy and sunny room,

and to have separate beds and table linen. The latter should be boiled before being washed. Healthy persons were reminded that consumption was an infectious disease and was communicated principally by swallowing the germs, by inhaling them, or by having them introduced through wounds. They were therefore cautioned against eating or sleeping with a consumptive, using the clothing of such a person, or putting into the mouth coins or other small articles that might have been handled by a consumptive. They were also advised not to kiss on the lips any one who had a cough.

An Additional Note on Nephrotomy and Nephrectomy.—In a paper thus entitled, Dr. E. D. FERGUSON, of Rensselaer County, said that in nine operations of this kind he had been unable to recognize tuberculosis as the cause of the disease, and as he thought the irritation produced by a rubber drainage-tube had had a bad effect in some of his previous cases, he now preferred a very free incision and after-treatment calculated to keep a large sinus open for a long time.

Dr. JOHN CROXN, of Erie County, spoke particularly of the great importance of determining the condition of both kidneys, and cited a case in point in which a lady had suffered for many years with symptoms pointing to stone in the right kidney, and, although there was no evidence of disease of the other kidney, the post-mortem examination had shown that this too contained a large calculus. He hoped that in the future the cystoscope might prove a valuable aid to more perfect diagnosis.

Dr. THOMAS D. SREONG, of Chautauque County, related the history of a case of renal abscess which had come under his observation in which no tubercle bacilli had been found in the secretions, even when these were examined by competent observers. The patient had been operated upon in the Presbyterian Hospital, New York, and at present was recovering rapidly.

Dr. FERGUSON said that, although he did not think these cases were usually tubercular at the beginning, they were very liable to become so. In the great majority of cases of renal disease the process began at the lower portion of the genito-urinary tract and extended by continuity of tissue to the pelvis of the kidney. Anything that tended to increase the cystitis was apt to spread the disease upward through the ureters; hence he looked upon the use of the cystoscope and catheterism of the ureters as more hazardous than an exploratory incision.

Dr. JOHN W. S. GOULEY heartily indorsed this view, and added that not only was there but little risk attendant upon the exploratory operation, but if the diagnosis of renal disease was confirmed by operation, nephrotomy could be performed at once.

The Treatment of Epithelioma and the Canceroid Ulcers by Topical Applications.—In a paper with this title Dr. NELSON J. NORTH, of Kings County, favored the use of a concentrated solution of lactic acid, which he applied by rubbing it into the ulcers with sufficient force to break up the crusts. It should be particularly noted that lactic acid was not a caustic and did not produce an eschar which simply covered up the disease; it seemed to penetrate the abnormal cells and destroy their vitality. When applied to abnormal growths, lactic acid appeared to be at first absorbed by them, whereas it had very little effect on normal tissue. When it was applied to a carcinoma, the growth soon assumed a brownish appearance and became shrunken, and at the same time a process of osmosis seemed to be going on, for there was soon a discharge of a brownish liquid. Several cases of carcinoma of the uterus were reported in which this agent had been used to greater or less advantage. It would seem to have a sphere of usefulness in the treatment of "inoperable" cases.

(To be continued.)

NEW YORK NEUROLOGICAL SOCIETY.

Meeting of October 3, 1893.

The President, Dr. M. ALLEN STARR, in the Chair.

A Memorial of the late Professor Charcot was read by the PRESIDENT. The author gave a brief sketch of Charcot's life, and reviewed the work of the great neurologist. Professor Jean Marie Charcot was born in Paris on the 29th of November, 1825. He was the son of a wagon-maker, a man of such limited means that he was not able to give all his children an education. Jean Marie received his early education at the Lycée St. Louis, at that time the best academy in Paris. After his preliminary education was completed there, the choice of the medical profession was made, not without some hesitation, for the young man's inclination was for the life of an artist, and it was possibly the lack of means which finally determined him to take up medicine. After passing through the medical school and serving as an interne in the Salpêtrière—an almshouse for old women, then almost unknown, but subsequently to become famous as the seat of his wonderful activity—he took his doctorate degree in 1853. For the next three years he served as chief of the medical clinic in the Medical School, supporting himself meantime by giving private lessons. He was then appointed physician to the Central Bureau of Paris, on a moderate salary. In 1860, after passing a rigid competitive examination, he became entitled to a hospital appointment, and two years later he was able to select the service at his old hospital, the Salpêtrière. He found a large number of old people collected together in this poorhouse, many of them suffering from chronic incurable diseases. He had the opportunity of watching the progress of disease, both acute and chronic, in old age, and, most important of all, he had unlimited pathological material to complete his clinical observations. It is to this latter fact that he owed the beginning of his reputation, for at that time pathology was just beginning to reveal the true reasons for disease. By the careful study of his cases, by his power to seize upon salient features which gave points for distinction, by his persistent following of cases from the ward to the autopsy room, and by the exhaustive study of the material collected there, he began to reach conclusions and to arrive at facts which were veritable discoveries in the medical world. The articles written by him between 1860 and 1870, each of which added a distinct fact, observation, or conclusion to the sum of medical science, soon began to attract attention, and the young physician found his rounds beginning to be attended by students, who liked to watch his careful study of cases or see him demonstrate the lesions which he found. In 1866 a small room in the hospital was set aside for the purpose of instruction, and he began to hold clinics and to lecture. The lectures were soon crowded by graduates in medicine, and the next year he was invited to give an open course of lectures at the *École pratique* of the Medical School. Here he had an opportunity to cultivate the power of teaching, and soon showed that wonderful facility of clear, direct statement and power of graphic illustration which afterward made his lectures the most attractive in the world. His first open course had for its subject cerebral hæmorrhage and softening; in subsequent lectures he discussed the clinical and pathological differences between paralysis agitans and multiple sclerosis; the arthropathies, which have since been known as Charcot's joint disease, etc. Thus within four years he had risen from the position of an unknown teacher to the position of one of the best lecturers in the Paris school.

In the year 1870 all female epileptics and hysterics who were not insane were transferred to the Salpêtrière. This afforded Charcot new material for study, and from 1872 the study

of hysteria in its multiform manifestations became one of his duties. The same year he was appointed professor of pathological anatomy in the Faculty of Medicine in Paris, the highest prize in the French medical world. In 1882 a professorship of nervous diseases was founded in the Medical School, and Charcot received the appointment, with the establishment of a public clinic at the Salpêtrière. From that time to the present year his annual courses of lectures have been attended by students of medicine from every land, and it may be truly said that few men of eminence at present living and working in neurology have not drawn inspiration from his model clinics.

Charcot's collected works will fill fifteen large volumes. He was also instrumental in founding a number of medical journals. His three volumes of lectures, published from 1872 to 1880, have had an immense sale. Public recognition of Charcot's abilities and eminence was not wanting. He had been president of all the chief medical societies in Paris, and was a corresponding member of numerous societies abroad, among them the New York Academy of Medicine and the New York Neurological Society. He was made a member of the Institute of France in 1883, and Commander of the Legion of Honor in 1892.

Charcot's investigations in hypnotism have attracted much attention, both from the profession and from the laity. It is difficult for any one to enter upon the study of this subject, or to pursue it with any degree of thoroughness, without exposing himself to adverse criticism and remark. It is difficult to estimate the true value of this department of Charcot's labor, but it can not be denied that all through the years which he devoted to this study his mind has been imbued with the purest scientific motives, and that facts, not theories, were his aim.

Another criticism which has been offered is that in his scientific zeal he neglected therapeutics; that his interest in patients ceased with the diagnosis. Those who make these statements must surely forget that our best methods of treating functional and hysterical nervous diseases—namely, the electrical and hydrotherapeutic methods—were successively developed and successfully employed by Charcot.

Charcot was a man of great dignity, of calm, even temper, of slow thought and utterance, but of much reserve power. In appearance like Napoleon, and in manner reserved and observant, he was not the type of man to be popular. With patients suffering from trifling affections he showed no sympathy, probably no interest. With patients whose diseases were severe or obscure or of a rare type he was kind, attentive, and interested, and was ready to spend valuable time in most careful investigation.

His relation to his pupils was one of mutual interest and affection. He was never familiar with them, yet he always respected and sought their opinions, was never autocratic in the direction of their work, and was always the subject of their devoted admiration and respect. His family life was a delightful one. He was married early in life to a lady of considerable wealth, who was enthusiastic in his work and by whose aid many scientific undertakings otherwise impossible were carried through. He had two children, one a boy, whom it was his fond desire to see succeeding him as a physician, and who gives promise of being worthy of the name.

Charcot, like every man of eminence, had his enemies, critics in science, rivals in medicine; yet, after all their criticism is exhausted, we must admit that he remains the greatest French physician since Trousseau, and the greatest ornament of the medical profession of the present age.

Dr. E. C. SEGUIN gave a few personal reminiscences of Professor Charcot. He referred to the generosity of the great physician in placing at the disposal of his students his abundant material and the use of his laboratories, and in allowing them to receive the full credit for their labors, instead of appropriat-

ing it to himself. Many of Charcot's pupils—Bourneville, Bouchard, and others—had been helped by him in every possible way to attain honorable positions. In disposition he was quite different from the popular idea of the Frenchman. He was not quick, or hasty, or mercurial. Every thought was carefully matured, and he collected his material for a long time before reaching or publishing his conclusions. He was averse to theorizing. He was a close analyst and a devoted follower of the induction method in reaching conclusions. Primarily, Charcot was a pathologist, and his reputation would always rest on his achievements in this field of medicine. His work in hypnotism, by which he was greatly fascinated in his later years, can only be regarded as a mere fragment—a digression which in the future would count as nothing.

Generalized Paresis ending in Complete Recovery.—

Dr. E. C. SEGUIN gave the history of a case as follows: The patient was a boy, aged thirteen years, who was brought to the speaker in October, 1886, for an opinion as to the nature and prognosis of a singular condition of increasing muscular weakness which had come on during the preceding eighteen months. The boy's family history was fairly good. His mother was of a nervous temperament and for a few months had been addicted to the chloral habit. Out of six children, only one other, a sister, had had a nervous trouble—namely, a mild chorea extending over several years. There was no trace of muscular disease, atrophic or dystrophic, in the family. The patient's history previous to the onset of this disease was negative. At the age of six years he had had a severe attack of albuminuria, which had left no traces. In April, 1886, he had what seemed to be a mild attack of articular rheumatism. He was a very active and daring boy, and had had numerous falls, none of which, however, were followed by serious symptoms. There was a history of masturbation, carried on for several years. There was no history or evidence of metallic intoxication, and at no time was there any indication of hysteria. The only positive causative element in the case was the self-abuse. This practice, the boy stated, he had given up in the spring of 1885, when he himself had noticed that he had slight difficulty in articulating his words. Five months subsequent to this the boy's symptoms were first brought to his father's attention by the fact that he twice fell out of the saddle, and by his suddenly dropping the oars in a boat and acting as if paralyzed for a few minutes. Even before that, it was recalled, he had become rather awkward in buttoning his clothes and in using the knife and fork, and after he had read aloud for a few minutes his articulation had become thick. Very gradually he had lost his energetic ways and become awkward in everything; his attitude had changed so that he stooped, the head hanging down and the abdomen protruding. His facial muscles had lost much of their expression, and his laugh was constrained and unnatural. All these symptoms had developed and progressed very slowly during the years 1885 and 1886. The boy was subject to "sudden collapses," as his father called them, characterized by a sudden loss of control over many muscles, resulting in falls or in dropping objects from the hand. These last-named symptoms suggested *petit mal*, but this affection was excluded after careful observation. The symptoms were entirely of a motor order; no numbness, no anesthesia, no neuralgia, no psychotropic symptoms. All his organic functions were normally performed; nutrition was good. The eyes were normal. The legs were apparently strong, and the boy could rise from the dorsal recumbent posture on a flat couch and also from a squatting posture, but these acts were done feebly, slowly, and with great effort. The spine was not tender and presented no deviation, except an antero-posterior one. Local paresis of the muscles was demonstrable only in the extensor group of the

right forearm. No muscles showed atrophy or hypertrophy. The knee-jerk was normal. There were no sensory symptoms, except a sense of fatigue in the muscles of the lips and tongue, as well as those of the forearm, on exertion. On electrical examination, the reaction of the nerves and muscles to both currents was normal. The sexual organs showed no visible signs of masturbation. The grasp on the dynamometer was: Right hand, 11; left hand, 16.

These were the facts of main importance elicited at the first examination, in October, 1886. The boy remained under his care from that time on for about two years, during which period he decidedly improved in motor power and skill, and his height increased by six inches. The treatment from the first, in the absence of any possible pathological diagnosis, consisted in the systematic, long-continued administration of tonics—such as bichloride of mercury, phosphorus, arsenic, and strychnine. At the same time a mild faradaic current was applied systematically every day. Also, from the first, a cold sponge bath was ordered on rising or at bedtime, followed by a thorough dry rubbing and manipulation of all the muscles. Another part of the treatment consisted in gentle gymnastic movements of the hands, arms, trunk, and legs.

The case was lost sight of by Dr. Seguin from the close of the year 1888 until September, 1893, when, on inquiry, he received a letter from the boy's father stating that his son was now in the junior class at college, and that he stood well in his class and excelled in wrestling and other athletic sports. The treatment advised by Dr. Seguin had been faithfully carried out for nearly three years longer by the father, and had been followed by a gradual but continued improvement in the boy's condition. His weight at the present time was one hundred and sixty-six pounds. The circumference of his chest was: Expiration, thirty-three inches; full inspiration, thirty-nine inches. The circumference of his waist was thirty-one inches; that of his mid-thigh, twenty-two inches; that of his biceps, thirteen inches. His endurance was good, and he was able to raise from the ground an iron rail weighing six hundred pounds. His grasp on the dynamometer at present was: Right hand, 73; left hand, 53. This, Dr. Seguin said, was the strongest grasp he had ever met with.

Dr. B. SACS said that while he had been listening to the first part of Dr. Seguin's paper—before it told of the boy's remarkable recovery—the case had reminded him of a primary muscular dystrophy of the facial-scapular-humeral type, with perhaps some extension into the lower extremities. Such a case had recently come under his observation, with many symptoms very similar to those narrated by Dr. Seguin. In cases of progressive primary dystrophy, particularly in pseudo-hypertrophic conditions, he had seen marked temporary improvement following treatment, although he had never observed a complete cure. Again, in Dr. Seguin's case there might possibly have been some nuclear trouble, with a mingling of symptoms pointing to the spinal cord or the medulla oblongata. If the case was one of primary muscular dystrophy, the question arose whether the cure would be a lasting one. He had seen a number of cases with a condition of pseudo-hypertrophy in which the muscular tissue first enlarged and then rapidly atrophied.

Dr. GEORGE W. JACOBY suggested that Dr. Seguin's case might have been one of polymyositis ending in complete recovery, and followed by a secondary hypertrophy of the muscles which now existed.

Dr. J. F. TERRIBERRY stated that it was against the laws of pathology to assume that an inflammatory process in the muscular tissue was followed by hypertrophy of the muscle, with increased power.

Dr. E. D. FISHER said that when we took into consideration

the fact that the boy had grown six inches taller while he had been under Dr. Seguin's care, the lesion had probably not been a spinal one.

Dr. SEGUIN stated that the suggestion made by Dr. Sachs with reference to the possibility of curing a case of muscular dystrophy in its early stage was an interesting one; he was not prepared, however, to advance the case as an instance of that disease. Neither did it resemble a case of myositis. There had been no pain; there had been a general weakness, which had sometimes been so pronounced that the boy had been unable to hold objects in his hands, or would lose all control over his muscles and fall to the ground.

Book Notices.

The Art of Preserving Health. Outlines of Practical Hygiene adapted to American Conditions. By C. GILMAN CURRIER, M. D., Visiting Physician to the New York City Hospitals, etc. New York: E. B. Treat, 1893. Pp. v-468.

The author of this volume is already known to the profession as an earnest and careful investigator by his published papers on the self-purification of flowing water, on filters, and on other hygienic topics. He has prepared this work as a practical one that contains the results of the most recent investigations, with the particular purpose of adapting it especially to American conditions, a matter that will be appreciated by all who have occasion to refer to works on hygiene, the most important of which have heretofore been the publications of European authors written from the standpoint of the European environment.

The first section is devoted to the consideration of soil and climate. Soil is studied with reference to the conditions of sanitary residence and of the dissemination of micro-organisms through the earth or in dust. Under climate the author treats of air and its impurities, of the air moisture, of winds, of atmospheric density, and of the selection of climates in the treatment of disease.

The second section treats of the hygiene of clothing and bedding, properly preceding the subjects treated of in the third section, bathing and personal hygiene. A section is devoted to the various forms of physical exercise from a hygienic standpoint. As the author truly states, the prosperity of the commonwealth demands not only the best school training for children, but that the schools should in no wise impair the health of scholars or teachers, and he devotes a section to a consideration of the influence of schools on health.

The section on occupation indicates the conditions that affect the health of laborers unfavorably, and the remedies therefor.

In the section on lighting the author urges the superiority of electricity over all other means of lighting.

The section on buildings and streets treats of both private and public buildings, of residences, and of stores. The section on heating includes the choice of fuel, the construction of flues, and the methods of warming by stoves, hot air, hot water, and steam.

The section on ventilation is written so as to enable those occupying or building houses to determine and apply the best methods for securing a proper air supply.

The sections on food, on its preparation and adaptation, and on diet, give an excellent résumé of our knowledge of these topics.

The section on water and water supplies is an excellent one,

embodying as it does the author's wide observation and study of this subject.

In the section on sewers the author commends the utilization of sewage in fertilizing farms.

One of the best and most practical sections in the book is that on house drainage and plumbing, and it is so illustrated that any one can derive a clear idea of the difference between proper and poor plumbing.

Brief sections are devoted to the disposal of garbage and other solid refuse and to the disposal of the dead.

A clear description of the relation that bacteria bear to disease gives a better understanding of the facts discussed in the section on infectious diseases.

The section on disinfection and the restriction of communicable diseases discusses not only the disinfection of houses and rooms, but also the general principles of quarantine.

The book is admirably printed, the illustrations have been carefully selected, and we think the work has a field of usefulness before it.

Abnormal Man, being Essays on Education and Crime and related Subjects, with Digests of Literature and a Bibliography. By ARTHUR MACDONALD, Specialist of the Bureau of Education. Washington: Bureau of Education, Circular of Information No. 4, 1893. Pp. 445.

A BRIEF reference to this work needs no apology. It costs the country a large amount in life and work and money and wasted resources to care for the dependent and defective classes. The physicians of the country, if they knew how and would, could influence legislation in the right direction. That we are so helpless and uninfluential is due to our wasted opportunities and neglect of any literature outside the bread-and-butter question. When every subject of public health and happiness is represented in the doctor's library, the doctor's thought, and the doctor's conversation, the doctor will be respected and paid proportionately for his services and his advice will be followed by legislatures.

Here is a little book that every earnest, honest, and thinking physician should have in his library and read. The title shows the scope of the book. The author divides abnormal men into three classes—the criminal class, the insane class, and the class of geniuses and reformers. The treatment is clear and fundamental. Two hundred pages are devoted to a most valuable bibliography, which will be of the greatest assistance to the studious and careful readers. The whole book is so interesting that, once begun, it must be finished before another volume can command the reader's attention. It may be obtained from Mr. W. T. Harris, Commission of the Bureau of Education, Washington.

Heath's Practical Anatomy: a Manual of Dissections. Eighth Edition. Edited by WILLIAM ANDERSON, F. R. C. S., Surgeon and Lecturer on Anatomy at St. Thomas's Hospital, etc. With Three Hundred and Twenty-nine Engravings on Wood. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xviii-744. [Price, \$5.]

The editor has assumed quite a task in preparing a new edition of this standard work, as he has made an extensive revision in order to bring it to a level with current teaching. One hundred and fifty pages of new matter have been added, a large portion of it being on the subject of topographical anatomy. A number of new illustrations have been substituted for others regarded as superfluous; in each instance in which an illustration has been taken from some other anatomical work due credit is given.

The editor has fulfilled his task in a careful and thorough manner, and this work is quite abreast with the text-books of the day and fully deserving of the commendation we have bestowed on former editions.

Nursery Problems. Edited by Dr. LEROY M. YALE. New York and Philadelphia: The Contemporary Publishing Company, 1893.

THE editor states that this little volume is made up of contributions to the columns of *Babyhood*. That magazine found that the replies to the inquiries addressed to the medical editor by anxious mothers proved to be such a popular feature that it was thought a selected collection might prove useful to a large circle of new readers. All young mothers will find much interesting information in the volume, and probably answers to many of the questions regarding their infants' welfare that vex them.

BOOKS, ETC., RECEIVED.

Anatomy, Descriptive and Surgical. By Henry Gray, F. R. S., Fellow of the Royal College of Surgeons, Lecturer on Anatomy at St. George's Hospital Medical School. The Drawings by H. V. Carter, M. D., late Demonstrator of Anatomy at St. George's Hospital. With Additional Drawings in Later Editions. A New American from the Thirteenth English Edition. Edited by T. Pickering Pick, Surgeon to and Lecturer on Surgery at St. George's Hospital. Philadelphia: Lea Brothers & Co., 1893. Pp. 24-33 to 1129.

A Text-book of Ophthalmology. By William F. Norris, A. M., M. D., Professor of Ophthalmology in the University of Pennsylvania, and Charles A. Olover, A. M., M. D., one of the Surgeons to the Wills Eye Hospital, Philadelphia. Illustrated with Five Colored Plates and Three Hundred and Fifty-seven Woodcuts. Philadelphia: Lea Brothers & Co., 1893. Pp. vii-19 to 641.

The Theory and Practice of Medicine. Prepared for Students and Practitioners. By James T. Whittaker, A. M., M. D., Professor of the Theory and Practice of Medicine in the Medical College of Ohio, etc. With a Chromo-lithographic Plate and Three Hundred Engravings. New York: William Wood & Co., 1893. Pp. xvii-3 to 821.

Nursery Problems. Edited by Dr. Leroy M. Yale. New York and Philadelphia: The Contemporary Publishing Company, 1893. Pp. 5 to 274.

Three Introductory Lectures on the Science of Thought. By F. Max Müller. With an Appendix which contains a Correspondence on Thought without Words, between F. Max Müller and Francis Galton, the Duke of Argyll, George J. Romanes, and Others. Chicago: The Open Court Publishing Company, 1893. Pp. vi-8 to 95. [Price, 25 cents.] [*The Religion of Science Library.*]

Hepatic Abscess, with the Report of a Clinical Case. By W. Blair Stewart, A. M., M. D., Philadelphia. [Reprinted from the *Medical Bulletin.*]

The Duty of the Community to Medical Science. By George M. Gould, A. M., M. D., Philadelphia. [Reprinted from the *Bulletin of the American Academy of Medicine.*]

The Pernicious Influence of Albinism upon the Eye. By George M. Gould, A. M., M. D., Philadelphia. [Reprinted from the *Annals of Ophthalmology and Otology.*]

Sarcoma of the Pons and Glio sarcoma of the Cerebellum. By Ludwig Hektoen, M. D., of Chicago. [Reprinted from the *Journal of the American Medical Association.*]

Acute Ulcerative Endocarditis: A Brief Résumé of the Pathology of Eight Cases. By Ludwig Hektoen, M. D., of Chicago.

go. [Reprinted from the *Journal of the American Medical Association*.]

Vitelline-duct Remains at the Navel. By Ludwig Hektoen, M. D., of Chicago. [Reprinted from the *American Journal of Obstetrics*.]

The Bile Salts, Urea, etc., as Therapeutic Agents. By Samuel G. Dixon, M. D. [Reprinted from the *Medical Bulletin*.]

Address on Hygiene. Delivered by Professor Samuel G. Dixon, M. D., at the Meeting of the State Medical Society, Williamsport, Pa.

Movable Kidney; with a Report of Cases treated by Nephrorrhaphy. By George M. Edebohls, A. M., M. D., New York. [Reprinted from the *American Journal of the Medical Sciences*.]

Report of Cases of Operative Relief of Endocranial Hæmorrhage. By W. H. Hudson, M. D., of Lafayette, Ala. [Reprinted from the *Annals of Surgery*.]

A New Instrument for controlling Tonsillar Hæmorrhage. By H. Hoyle Butts, M. D., of New York. [Reprinted from the *Medical Record*.]

The Prevention of Puerperal Septicæmia. By Walter B. Chase, M. D., Brooklyn, N. Y. [Reprinted from the *New York Journal of Gynecology and Obstetrics*.]

Transactions of the American International Medico-legal Congress held at Chicago, August 15 to 17, 1893.

Réminiscences historiques concernant l'extraction de la cataracte. I. La section de Daviel. II. Modifications apportées par Daviel à sa section. III. L'extraction à lambeau triangulaire ou ogival. Par L. De Wecker. Paris: G. Steinhil, 1893. Pp. 38.

Ein dermatologisches System auf pathologisch-anatomischer (Hebra'scher) Basis. Von Dr. S. Jessner, Königsberg i. Pr. Hamburg und Leipzig: Leopold Voss, 1893. Pp. 66.

New Inventions, etc.

AN ADENOTOME FOR THE REMOVAL OF ADENOID GROWTHS IN THE VAULT OF THE PHARYNX.

By PETER J. GIBBONS, M. D.,
SYRACUSE, N. Y.

We are accustomed to remove hypertrophied pharyngeal tonsils or adenoids in the vault of the pharynx by means of forceps, curettes, snare écraseurs, or electrodes. But these methods I have found in my experience much inferior to removal by the adenotome here presented.

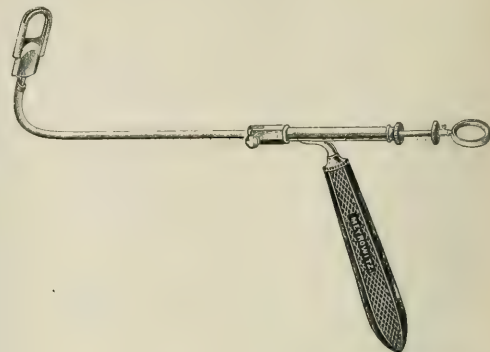
The apparatus was made by E. B. Meyrowitz, 104 East Twenty-third Street, New York. It consists of a broad, flat steel plate, with an oval opening in the distal extremity sufficiently large to receive the adenoid. To this is attached a knife, secured by lateral grooves, and so adjusted that in pushing the knife forward across the fenestra it will amputate as much of the adenoid as projects through the opening.

The handle is similar in construction to Bosworth's porta-castique for the pharyngeal vault, and can be readily taken apart. As will be seen, the shape favors an easy introduction behind the palate and to the base of the growth. Should the palate be retracted by reflex irritation, it would only embrace the tube of the instrument without in any degree hampering the manipulation. I sometimes find it convenient to use a palate retractor when introducing the instrument.

The manipulative technique is as follows:

With mouth well open, the handle is pressed upon the lower

teeth. The distal extremity is elevated and pushed backward with considerable vigor, thus working the ring of the instrument well down to the base of the gland, when, by a quick contraction of the fingers of the right hand, the peculiar mechanism of the instrument is brought into play and the adenoid cut through.



There is but trivial hæmorrhage, but little pain or retching, and the whole manipulation is accomplished very easily, simply, and speedily. The operation by this method, except in the case of young children, has rarely required an anæsthetic. As an aid to manipulation, we should always make use of cocaine, to thoroughly contract the blood-vessels and open up the nasal cavity, through which we can generally succeed in keeping the distal end of the instrument under ocular inspection.

324 WARREN STREET.

Miscellany.

Ovulation and Menstruation.—In the *Proceedings of the Royal Society*, No. 326, there is an abstract of a paper by Mr. Walter Heape, Balfour Student at the University of Cambridge, giving an account of his investigation of the phenomena of menstruation in *Semnopithecus entellus*.

The phenomena attending menstruation are grouped into four periods, and these are subdivided into eight stages: A. Period of rest. Stage I. The resting stage. B. Period of growth. Stage II. The growth of stroma. Stage III. The growth of vessels. C. Period of degeneration. Stage IV. The breaking down of vessels. Stage V. The formation of lacunæ. Stage VI. The rupture of lacunæ. Stage VII. The formation of the menstrual clot. D. Period of recuperation. Stage VIII. The recuperation stage.

The body of the uterus, says Mr. Heape, consists of an internal mucosa and external muscle layers. The mucosa is composed of uterine and glandular epithelium, blood-vessels, a few radial muscles, and stroma. The stroma has the appearance of embryonic mesoderm, the internuclear protoplasm is drawn out into very delicate processes, forming a continuous network, there is no intercellular substance to be seen, and a few long radial fibrils are present during the resting stage only. It is a very primitive tissue.

The author then describes the phenomena as follows:

Period A, Stage I.—The uterine epithelium is a single row of cubical cells; its outer edge is sharply defined in section, but the protoplasm of the base of the cells is continuous with the

protoplasmic processes of the stroma. The glandular epithelial cells are columnar; they rest on a basement membrane, but have no sheath. Round nuclei are imbedded in the protoplasmic network of the stroma, which is evenly disposed for one third of the depth of the mucosa, while below that a few radially arranged fibrils occur. The blood-vessels are small and fairly numerous.

Period B, Stage II.—An increase in the number of the nuclei of the stroma by amitotic division and probably by fragmentation causes swelling and increase of density in the upper third of the mucosa—hyperplasia. Owing to pressure, the nuclei become fusiform. An enlargement of vessels takes place. No decidual cells are formed. *Stage III.*—The mucosa is further swollen. The epithelium is stretched and becomes thinner. Hyperplasia of the vessels directly below the epithelium takes place and they are congested. The size of many of the nuclei of the stroma is reduced.

Period C, Stage IV.—Hypertrophy of the uterine epithelium of the stroma and of the walls of the vessels appears all over the mucosa, followed by degeneration in the superficial region, where the dilated, congested capillaries break down, the blood contained therein being extravasated among the stroma. The degeneration is probably amyloid or hyaline, not fatty degeneration. A considerable increase in the number of the leucocytes in the superficial vessels takes place. There is no migration of leucocytes and no diapedesis of red blood-corpuscles, but where vessels are ruptured a few leucocytes are swept out, together with red blood-corpuscles, into the surrounding tissue; many leucocytes, however, remain attached to the remnants of the walls of the broken-down vessels. *Stage V.*—The extravasated blood now collects into lacunæ, which are first formed within the stroma, but gradually extend superficially, displace the intervening stroma elements, and lie directly in contact with the epithelium. The vessels in the deeper mucosa remain intact; there is no trace of diapedesis and no red blood-corpuscles or leucocytes in the stroma in this region. *Stage VI.*—The lacunæ increase in size. The uterine epithelium and superficial stroma shrivel up and exhibit signs of degeneration. The epithelium ruptures and the blood contained in the lacunæ is poured into the uterine cavity. *Stage VII.*—Denudation follows. All the uterine epithelium, a portion of the glands, and in some places a whole gland, and a depth of about one third of the layer of the stroma is cast away, together with ruptured vessels, red blood-corpuscles, and leucocytes. Of these substances the menstrual clot is formed. This is a severe, devastating, periodic action, which is very remarkable. A ragged surface is left behind, and the remaining stroma contains, at or near the surface, masses of extravasated blood. In the deeper parts of the mucosa there is no further change.

Period D, Stage VIII.—The recuperation consists of the reformation of the epithelium, partly from the torn edges of the glands and partly by means of the transformation of stroma elements into flat epithelium; of the formation of new capillaries in the superficial region out of the stroma cells which surround the intercellular spaces in which the extravasated blood lies, and in the return of this reclaimed blood to the circulatory system; of the return of the vessels in the deeper mucosa to their normal size and consistence, and of the return of the stroma to the condition of rest (*Stage I*). The new epithelium, at first flattened, becomes cubical, and new glands are formed from folds of this epithelium. The numerous leucocytes left with the extravasated blood are returned to the circulatory system with the latter; they do not migrate, they do not form new tissue *in situ* or pus on the wounded surface.

Ovulation.—Out of the ovaries of forty-two specimens of menstruating *Semnopithecus entellus*, only two were found in

which recent discharged follicles were seen. Such a result appears to the author sufficient to warrant these statements: 1. Ovulation does not necessarily occur during each menstrual period, and 2. Menstruation is not brought about by ovulation.

The two corpora lutea seen, he says, occurred in specimens of *Stage III* and *Stage IV*; during these stages the first great increase of the blood supply to the mucosa takes place, and it therefore appears possible that the increased supply of blood to the generative organs during the early stages of menstruation may possibly induce ovulation when a sufficiently ripe ovum is present in the ovaries; there is direct proof, however, that an ovum is not dehiscid at each menstrual period.

Recent observations, says Mr. Heape, show that periods of growth and degeneration occur in the mucosa of the bitch when rutting, but denudation is not described. There is good reason to believe, he adds, that the period of growth is invariably present in the mucosa of rutting animals, and, as ovulation and rut are stated to be coincident, it appears highly probable that the period of growth during menstruation represents the preparation of the mucosa for the reception and retention of an ovum, while the degeneration period represents the result of failure to fertilize the ovum or failure of ovulation.

He ventures to express the belief that the function of menstruation may be thus expressed, but he fails to find any evidence of the origin of menstruation.

Electro-therapeutical Appliances.—At the recent meeting of the American Electro-therapeutical Association various committees reported as follows:

On Standard Coils.—The chairman of this committee, Dr. William James Morton, of New York, said that the subject was so large, and each month was bringing so many new facts, that it seemed premature to make a report as to what should constitute a standard coil. On motion, the committee was continued.

On Standard Meters.—Dr. Margaret A. Cleaves, of New York, read a report of this committee. The report stated that a good meter should possess a clear, legible scale of long range, and should be so constructed that it could be easily read by the operator while at work; that, although in itself a slant was not disadvantageous, it was undesirable because of the possibility of its heating and thereby changing its resistance; that the instrument should indicate in all positions, and was preferable when constructed to indicate with the current passing in either direction; that it should be very portable; and, lastly, that it should not easily get out of order. Instruments of the galvanometer type were considered to be inaccurate on account of the magnetic influence exerted by surrounding objects. Then followed a detailed description of the nine meters which had been submitted to the committee for examination, and the tests to which these instruments had been subjected. The report concluded with the statement that, in the opinion of the committee, the two meters which most nearly fulfilled the requirements were the Weston and the Kennelly meters, and the association was urged to adopt a standard meter at once. The report called for a long and earnest discussion as to the advisability of adopting a standard meter at present. Some of the members were of the opinion that one of the meters specially recommended by the committee had not been sufficiently long before the profession to enable many of those present to pass intelligently upon its advantages or disadvantages, and they therefore deprecated hasty action. Others thought it was impossible to combine in any one meter all the points a meter should possess in order to render it a thoroughly reliable instrument for all kinds of clinical work; and they consequently favored the adoption of two types of standard meters. It was also sug-

gested that to avoid unnecessary discrimination the association should adopt a type of meter as a standard rather than any one particular instrument. The report of the committee was finally accepted and the committee continued.

On Static Machines.—Dr. Morton reported that in order to pursue their investigations systematically a number of questions had been sent out in a circular letter, but no responses had been received. The committee made the following recommendation: That electro-static machines adapted to medical practice should not have fewer than four revolving plates, and that the diameter of these plates should not be less than twenty-six inches. The report of the committee was accepted and the committee continued.

On Constant Current Generators and Controllers.—Dr. W. J. Herdman, of Ann Arbor, read a carefully prepared report on this subject in which he considered in detail the work accomplished by the various batteries which had been submitted to him for examination. No secondary batteries had been submitted, and mention of one or two batteries which had only been very recently sent in was omitted for lack of time to make the necessary tests. On motion, the report was accepted and the committee continued.

On Electrodes.—Dr. A. Laphorn Smith, of Montreal, read a report of the committee. The committee expressed the opinion that the best ground work for all electrodes was copper-wire gauze, and that the connection was best made by copper wire soldered the whole length of the gauze and terminating in a binding post—that known as No. 632 (?)—which was largely used by telephone companies throughout the world. Clay was considered the best covering, as it was the only substance which could be rendered moist enough to conduct properly without at the same time soiling the patient's clothing. It should be half an inch thick and of the consistence of putty. Before each application it could readily be cleaned by washing its surface with soapsuds. The back of the electrode was insulated with common table oilcloth. The committee recommended three sizes of dispersing electrodes—viz., each having a uniform length of a foot, and the width three, six, and nine inches respectively. It was desirable that these sizes should be given in the metric system. For active electrodes to be used with the positive pole the committee naturally selected platinum as the best, its one objection being its first cost. Where the applications were to be made to the surface of the body or to the interior of a cavity like the uterus, carbon was equally good, and for such purposes carbon beads could be threaded on platinum wire. Zinc was also a useful material for intra-uterine galvano-cauterization. It should be connected with the rheophore by means of the standard binding post already mentioned. It was recommended that the conducting cords employed in electro-therapeutical work should be of the standard sizes and lengths used by the Bell Telephone Company. For negative intra-uterine application a Simpson sound made a useful electrode, and its size should be stated according to the French scale. Where the surface of the electrode was necessarily very irregular, its area should be determined by ascertaining how much water it would displace. It would be well for manufacturers to stamp all electrodes with two numbers—one giving the French scale and the other the displacement of water or the surface of the electrode. The committee recommended that a standard insulating material be adopted, and that the standard screw should be No. 240 of the American gauge. All electrodes should be washed with soapsuds after each application and boiled for five minutes before being used again.

Dr. Morton supplemented this report by presenting certain electrodes which he had devised, and which had proved useful in his practice. The first was a rubber covering for dispersing

electrodes. It was an elastic rubber cap which would slip over the various-sized electrodes, and which formed a pocket around the electrode, thus catching the water which would otherwise leak out on the patient's clothing. The second instrument was a new cataphoric electrode. With the usual form of this electrode it had been found impossible to apply the desired quantity of the medicated solution to the electrode without increasing the thickness of the blotting paper to such an extent that it interfered with and sometimes wholly prevented cataphoresis; for it was essential that the distance between metallic conduction and electrolytic conduction should be reduced to a minimum. To obviate this defect Dr. Morton had an electrode made in the form of a hollow box of hard rubber, the bottom of the box being formed by a piece of block tin perforated with numerous small holes. The box was filled with the desired quantity of the medicated solution, which passed through the small openings in the tin bottom and was fed to a thin piece of blotting paper on its lower surface. In this way any quantity of the solution might be employed without interfering in the slightest degree with the cataphoric action. The third instrument exhibited was an Apostoli intra uterine electrode insulated at the tip and at the cervical portion. In conclusion, the speaker referred to the advantages of punk as a covering for electrodes, and said his patients invariably found it the most agreeable covering of any employed. It had the great advantage of remaining moist for a long time.

Dr. G. Betton Massey, of Philadelphia, said that two years before he had devised an electrode made of a spiral of platinum wire inclosing a second spiral, the object of this construction being to facilitate rendering the instrument aseptic. A flat coil of No. 20 wire was, in his opinion, a much better basis for an electrode than gauze. If the French scale was employed, he thought it should indicate the diameter and not the circumference of the instrument.

Dr. Franklin H. Martin, of Chicago, called attention to the fact that he had been the first one to invent and exhibit a spiral electrode. His instrument had been first brought to the notice of the profession in 1887.

Dr. J. B. Greene, of Indiana, preferred the English to the French scale. The best material he had ever used for an electrode was moistened wood pulp; it was an excellent conductor, and so cheap that it could be thrown away after use. In his opinion, it would be impracticable to fix upon standard sizes for electrodes.

A communication was read from Dr. Lucy Hall Brown, of Brooklyn, in which she recommended a special electrode made of perforated brass plate covered with punk and connected to the rheophore by a peculiar spring clamp which she had devised.

The New York Academy of Medicine.—The special order for the meeting of Thursday evening, the 19th inst., was a paper by Dr. Andrew F. Currier, entitled *Myoma Uteri and its Treatment*.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 25th inst., Dr. N. T. Roberts is to read a paper on *Adenoids in Young Infants*.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 26th inst., Dr. Edward P. Davis, of Philadelphia, is to read a paper on *The Toxemia of Pregnancy*.

At the next meeting of the Section in Public Health, Legal Medicine, and Medical and Vital Statistics [would that its title were curtailed!], on Monday evening, the 30th inst., Mr. Savage is to read a paper entitled *Dispensaries Historically and Locally Considered*.

Original Communications.

OBSERVATIONS ON POTT'S DISEASE,

WITH REFERENCE TO THE
PRINCIPLES OF TREATMENT AND THEIR APPLICATION.*

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THE principles which govern the treatment of Pott's disease are somewhat as follows: It is tuberculous in character; therefore the general condition of the patient must be sustained by the constitutional and therapeutic measures that are indicated in other manifestations of tuberculous disease. It is a local affection of the bones and joints of the spine, accompanied by symptoms of pain and deformity that may be relieved or prevented by restraint of motion, protection from injury, and removal of superincumbent weight.

The treatment under which the general health is maintained, by which a proper attitude of the entire body is assured, which relieves pain and prevents deformity, is effective; when these conditions are not fulfilled, treatment is ineffective.

The successful treatment of Pott's disease depends upon (1) a knowledge of the functions and relations of the different portions of the spine, in order that one may interpret the early symptoms of disease, because a diagnosis can and must be made before the stage of bone deformity if the best result is to be attained.

2. A knowledge of the deformities and complications of disease peculiar to the region affected, in order that one may foresee and guard against them, for the final deformities of Pott's disease differ very materially with the region of the spine involved.

3. An apprehension of the nature of deformity and of the conditions that favor or retard its progress.

4. An appreciation of the duration and extent of disease and deformity, of the quality of the patient and the nature of his environment, in order that treatment may be applied intelligently or that a necessary compromise may be made between what is best and what is possible. The treatment of the patient in distinction to the treatment of his deformity is one of the more common and difficult problems, because patients are not often seen in the early stages of disease. The popular idea of Pott's disease is that it causes a hump, that the diagnosis is made because of the hump, and that the treatment consists in the application of a brace or plaster jacket without regard to the extent or position of the hump or to the symptoms or complications of disease. Consequently patients are brought for treatment in all stages of deformity or suffering, it may be from symptoms or complications that may call for special treatment, either because they directly influence the

course of the affection or indirectly increase the tendency to deformity.

In one, the constitutional depression of the tuberculous disease is out of proportion to its local manifestation; in another, great deformity has been acquired with practically no effect on the general condition. The complication of abscess may from its position endanger life in one instance, while in others it may increase the tendency to deformity, or interfere with effective support, or remain for a time and disappear without symptoms or consequences. The treatment which may be most effective in childhood, when the danger of deformity is greater than the danger to life, may not be applied to the adult, for whom the relative danger of the constitutional and local disease is reversed.

The object of treatment is the prevention of deformity; not only because the effect of treatment is estimated by the degree of ultimate deformity rather than by the survival of the patient, but because deformity itself, after complete recovery from constitutional and local disease, by its distortion and compression of vital organs, is a constant source of weakness and danger.

To apprehend the nature of deformity, its causes and final results, one must bear in mind the fact that the spine is a flexible column, which, balanced under the influence of the force of gravity, is constantly changing its shape to accommodate itself to the different attitudes and movements of the body.

If by disease the function of one portion is interfered with, another part must accommodate itself to the change.

If one section is deformed or thrown out of its true relation to the weight line, another part must change in the opposite direction.

These compensatory changes, though bearing a necessary relation to the original cause, may, in the growing child, become exaggerated and independent deformities, or permanent distortions may be acquired which originally were merely symptomatic of disease. The deformities of Pott's disease may thus be divided into two groups, the essential and the non-essential. The essential deformities are those caused by destruction of bone and loss of growth—two factors modified to a great extent by early diagnosis and efficient treatment.

Pott's disease is a destructive process which affects the bodies of the vertebræ, the weight-supporting portion of the spinal column. As the effect of weakness and loss of support, the superior section of the spine inclines forward, bringing more weight, and thus the influence of attrition, to bear on the diseased area. The more rapid the destructive process, the more often abscess complicates the condition; this abscess may dissect its way down the spine, infecting other vertebræ in its progress. It is apparent, then, that while the disease causes deformity, the deformity may increase the disease.

The non-essential and more distinctly preventable deformities are those which depend upon the symptoms or complications of the disease; one of these is muscular spasm. In disease of the cervical region, for example, the head may be drawn into a wryneck position, which, if

* Read by title at the seventh annual meeting of the American Orthopædic Association.

allowed to persist, becomes a permanent deformity, for contracted tissues do not grow and the bones of the spine quickly accommodate themselves to the changed condition of weight and function; or abscess which involves muscles and fascia may induce a faulty attitude. This is well illustrated in disease of the lower region of the spine, in

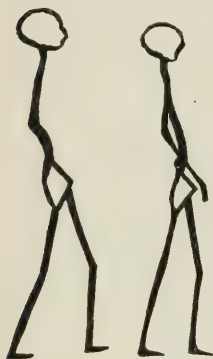


FIG. 1.

FIG. 2.

which the compensatory lordosis or overerectness of the body is one of the favorable factors in prognosis (Figs. 1 and 2). When, however, psoas abscess causes flexion of the thighs, the erect posture is impossible (Fig. 3); thus the habitual attitude becomes most unfavorable and, if it is allowed to persist, permanent and unnecessary deformity may result (Fig. 4).

Simple weakness is another element of deformity. When one sees a child suffering from dorsal disease walking about in the squatting attitude of weakness, supporting the body by

the hands on the knees, it is very evident that treatment is ineffective, because a proper attitude is not maintained.

After the cure of the primary disease, the resulting



FIG. 3.

FIG. 4.

deformity and the general weakness favor secondary curvatures of the spine, just as weakness and faulty attitudes may cause postural curvatures without the influence of local disease.

When the spine is distorted, the thorax must, in a certain degree, participate in the change; but the exaggerated pigeon-

breast deformity of dorsal disease can be prevented by efficient treatment.

The natural tendency of Pott's disease is to cause a right-angled deformity at the point of weakness. The opportunity for deformity is greatest when the middle of the spine is diseased, because the column is broken in the center. The opportunity for deformity is small when either extremity is affected, because the deformed portion is insignificant compared to that which remains intact. It is evident, then, that it is not the mere angular projection, the direct and essential effect of the local disease, which is of importance, but that the true measure of deformity is the effect of the disease or deformity on the spine as a whole. (Contrast Figs. 6 and 7.)

Each region of the spine, because of its position, functions, or relations, presents certain peculiarities which influence prognosis and treatment. Disease of the occipitotaxoid section, the region of true joint motion, is not infrequently a primary affection of the synovial membrane; consequently, more acute in symptoms and rapid in progress.

Disease of this region is more dangerous because of the proximity of the vital centers and because of the possibility of sudden displacement and pressure on the cord.

It is not infrequently complicated by abscess, which, unable to find an outlet, dissects its way about the contiguous vertebrae, or forms a tumor in the throat which may interfere with breathing and swallowing.

On the other hand, because of the acute symptoms, an early diagnosis is usually made, and, under favorable circumstances, the course of the disease is short and the result favorable.

The most disastrous deformity of this region—one not infrequently seen in untreated cases—is caused by the falling forward of the head so that the chin becomes fixed upon the sternum. The indications for treatment are to prevent ultimate displacement of the head by fixing it in the line of the normal spine and at a right angle to it.

The prognosis in disease of the middle of the neck is favorable from all standpoints, because the special movements of the head are unaffected and because the opportunity for final deformity is slight. Children are often brought for treatment in whom the right-angled deformity, concealed by the occiput, has never been discovered by the parents or physician. Disease of this region is often accompanied by painful contraction of muscles and distortion of the head, often complicated by enlarged or suppurating glands or sinuses. The indications for treatment are therefore the removal of the superincumbent weight of the head and relief of muscular spasm by active extension.

In disease of the upper and middle dorsal region the prognosis is particularly unfavorable as regards deformity. The disease is not, as a rule, discovered at an early stage, because motion in this region is slight, and the symptoms are therefore not pronounced.

The normal posterior curvature of the spine is markedly exaggerated by slight deformity, while the compensatory lordosis tends to increase rather than to limit the kyphosis. The course of the disease is long, and the tendency to increasing deformity remains after complete cure of the local disease. The direct effect of deformity in compressing and distorting the thoracic viscera, and thus causing permanent weakness, is often very apparent (Fig. 5). A most serious and not infrequent complication of disease in this region is paralysis from secondary implication of the spinal cord. The indications for treatment are to combat all deformities, primary or secondary; to prevent the forward inclination of the head and neck; to restrain unnecessary movements of the arms; to draw the shoulders backward; to prevent the secondary deformity of the chest and the compensatory lordosis.

The prognosis in disease of the middle of the spine is favorable if the patient is seen in the early stage, because

the mechanical conditions are such as to make apparatus effective in relieving symptoms and preventing deformity.

If neglected, disease of this region produces the typical humpback (Fig. 6), the dwarfed stature, the square shoulders, the sunken head, and the distorted back and chest.

At a lower point the attitude symptomatic of disease tends to prevent great deformity, but in a large proportion of cases abscess and psoas contraction change this attitude to an unfavorable one. The indications for treatment are to restrain the awkward attitude of overerectness and to guard against the effect of psoas contraction. If this con-

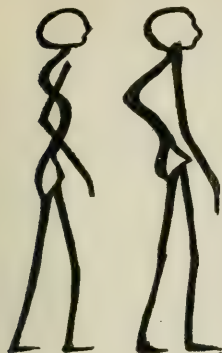


FIG. 5.

FIG. 6.

traction is on one side only, the proper attitude of the spine may be maintained by providing the patient with a high shoe on the unaffected leg and crutches. If the contraction is of both sides, the patient should not be allowed to go about, but the irritation must be relieved by complete rest, or the abscess treated directly.

In the two regions of the spine, the upper and lower, in which abscess most often makes its appearance, radical operation is most often indicated; in the first, because of its position; in the second, because of its size and deforming influence. In both these regions it is sometimes possible to reach and remove the source of suppuration. Except as an imperative necessity, the radical treatment of abscesses should not be undertaken unless the proper conditions for treatment can be assured, unless the source of pus can be reached, and unless there is a fair prospect of avoiding a suppurating sinus, which is often a source of danger and discomfort to the patient or interferes with effective support.

Abscess is a symptom of disease of which the importance is estimated by its effects. It may be prevented, and its extent and course may be modified by proper treatment of the cause of which it is a symptom. The aspiration of abscesses, with the injection of antituberculous remedies, is the treatment by preference. It is often effective and always harmless.

In the treatment of Pott's disease, rest and fixation in the horizontal position fulfill all the mechanical conditions: superincumbent weight is removed; the function of the diseased spine ceases; jars, injury, and overfatigue are impossible.

On the other hand, this treatment is incomplete in itself, because it must be supplemented by some form of mechanical support when the erect posture is again assumed.

It necessitates confinement and lack of exercise, the constitutional stimulation very essential in the treatment of tuberculous disease. The duration of Pott's disease is estimated in months and years; thus the moral effect of help-

lessness and confinement for such a period must be considered. In general, this treatment is a last resort, or is a temporary measure indicated for the relief of pain or threatened complications. In certain cases it is the treatment by preference; as in infancy and early childhood, because the spine is in great part cartilaginous, the effect of disease in checking the growth and in the rapid production of deformity is very marked.

Young children submit very readily to a treatment that relieves them of discomfort and pain—that is, in fact, a simple prolongation of the helplessness of infancy.

The treatment is usually indicated for a longer or shorter time under the following conditions: In disease of the upper cervical region, because the head may be fixed, the danger of abscess lessened, dislocation and deformity prevented, pain relieved, and the progress of the disease checked before joint motion is greatly impaired. In disease of the upper dorsal region in young children, because progressive deformity is difficult to control, and a proper attitude difficult to maintain by apparatus. In disease of the middle thoracic region, in which the grunting respiration and the faulty attitude—the evidences of pain and weakness—show that treatment is ineffective. In disease of the lumbar region, in which the complication of psoas contraction makes the erect posture difficult or impossible.

This treatment is always indicated when pain is not relieved by other means; in the acute phases of disease, shown by pain, fever, and rapidly increasing deformity; in the complication of paralysis; or for the radical treatment of abscess.

To be effective, the rest treatment must always include fixation and often extension, and the apparatus must be entirely independent for its effectiveness of the bed on which it is placed. The most simple and useful appliance is, I believe, the frame first recommended by Bradford. The frame is made of light steel bars or gas pipe, a little longer and as wide as the child's body. This frame is covered by canvas, which is made smooth and rigid by straps or corset lacings on the under surface; between the two layers a thin hair mattress may be inserted if desirable.

For older children it is well to apply the canvas cover in three sections, the narrow middle sheet to be removed for the use of the bed pan. This is unnecessary when diapers are used, the middle portion being protected by rubber sheeting.

Two or more sets of covers (sheets) are necessary, in order that the apparatus may be perfectly clean, for an unclean child is always neglected.

The patient must be fixed to the frame; the child who can raise the head or turn the body is uncomfortable and unhappy because he can not sit up, but when motion is impossible he quickly accustoms himself to restraint. To fix the patient, the shoulders and the head are the two points of advantage. If the shoulders are fixed, he can not turn over; and if the head is held, he will not attempt to sit up. The patient is usually attached to the frame in the following manner: A broad swathe surrounds the body and the frame, and straps attached to the frame are passed

over the shoulders and through the axillæ, while a band across the chest prevents displacement.

Traction is indicated in cervical disease, and may be applied with advantage in disease of the upper dorsal region, with the aim of reducing deformity. Traction is easily accomplished by the ordinary halter attached to a slightly flexible steel upright, screwed to the brace after the manner of the jury mast. The amount of traction is regulated by raising the head of the frame; this allows the child to look about and is often as effective as the weight and pulley. Pillows beneath the head are not often indicated; in fact, it is sometimes necessary to loosen the upper part of the canvas so that the occiput may fall back, and to place a pad beneath the dorsal region if effective traction is to be applied in disease of that region; by this means in young children it is sometimes possible to reduce what is apparently deformity of bone. In the treatment of cervical disease, particularly in those cases in which the displaced bone projects forward, it may be necessary to place a pillow beneath the head as a temporary support.

Psoas contraction, even if complicated with abscess, often disappears under the influence of rest. If, however, this position has long been maintained, it may be necessary to apply traction to the legs, as in the treatment of the deformities of hip disease.

The rest treatment is not often indicated in cases of great deformity, or in half-grown children or adults, except to meet certain indications, some of which have been mentioned; but it may be applied, and almost always with advantage, in the treatment of any region of the spine in infancy or early childhood. The patients may be taken into the open air daily, pain is relieved, the condition of the patient improves, while growth is often very rapid. Strong objection to the treatment is often made by the parents, but, once applied, its effects are so apparent that it may be continued without protest until other indications call for change.

If the essential conditions can be fulfilled by treatment which does not confine the patient to the bed or house—in other words, does not make an invalid of him—this is the treatment by preference.

The principle of support in the erect posture is this: If the body is inclined forward, the weight or pressure is supported by the bodies of the vertebrae. When the body is inclined backward or held in the upright position, more weight is supported by the articular processes. This is what is meant by relief from superincumbent weight as effected by a spinal support; in addition, it fixes the spine and protects it from the injury of motion.

If the point of disease is above the thoracic section, superincumbent weight may be actually lifted; the body support then acts primarily as a base of support for the attachment which fixes or lifts the head.

The two types of appliance used are the plaster jacket and the spinal brace. Each of these has advocates who seem to base their conclusions on the failures of the one rather than on a personal comparison of the merits of the two; the desirability of interchanging the two methods of

treatment is not often considered in the discussion or writings on this subject.

The jacket is brought into disrepute because it can be so easily and is so often applied by those who have a blind faith in its efficacy as a specific for humpback; the brace, because of a lack of knowledge of the principles of its construction or application.

The jacket is in fact a simple circular plaster bandage, which, like any other plaster bandage, depends for its efficiency on the size and irregularities of the surface to which it is applied and on the distance to which it extends on either side of the point to be fixed; for example, a plaster bandage applied to the knee of an adult may be an effective support, yet is useless on the leg of an infant. So the plaster jacket may be admirably effective when applied under proper conditions, and absolutely ineffective under others.

The plaster jacket provides a general support for the trunk as a whole; solid at the sides, front, and back; less accurately adjusted than the brace at the seat of disease. The abdomen is supported and counterpressure applied to the chest without uncomfortable tension. The jacket is most effective as a support in disease of the middle of the back, less effective at a lower point, because the unyielding plaster does not allow the accurate adjustment to the pelvis that may be afforded by the brace. The brace, which is more effective in the lower region, is also more effective in the middle and upper dorsal region, because, by an appliance that I have elsewhere described (*Transactions of the Orthopædic Association*, vols. iv and v, and *Philadelphia Medical News*, November 19, 1892), backward traction may be applied to the shoulders, the leverage of the brace increased, and greater fixation assured by restraint of unnecessary forward-reaching movements of the arms, which act directly on the weakened spine to increase the deformity.

The jacket is admirably effective as a support in disease of the middle region in adults. It is a better support than the brace in cases of marked deformity and in cases of lateral distortion of the spine. When the neck region is involved the choice between the brace and jacket is more often one of relative comfort than of other importance. The jury mast is usually associated with the plaster jacket, but may equally well be used with the brace. In disease of the occipito-axoid region greater fixation of the head than is afforded by the jury mast is usually indicated; while in the painful distortion of the neck, associated it may be with suppurating sinuses or inflamed glands, the active traction afforded by the jury mast and halter is more comfortable and effective than the simple fixation of the metallic head supports. A disadvantage of the jury mast is that it is a very noticeable and rather offensive support. This is a matter of some importance, because head or chin supports are oftener indicated in disease of the dorsal region than is usually taught, not for the relief of pain, but to check the tendency to slowly increasing deformity. In such cases an inoffensive chin rest may be used when the jury mast would not be tolerated. One may conclude, then, that while the brace and its attachments has a wider range of application,

under certain conditions the jacket is more comfortable and more effective.

The faults of the jacket, as it is often applied, are that it is made too short below to support the abdomen, but allows it to bulge out beneath—thus it fails in support and predisposes to hernia; that it is not carried high enough to cover the chest and assure efficient counterpressure; that jury masts are not applied when they are indicated, are not strong enough to support the weight of the head, and that traction is not properly applied.



FIG. 7.

Most of the spinal braces sold in shops are useless; others are not properly fitted or the aprons are too short or made of yielding material which allows uneven and uncomfortable tension. While either method, properly carried out, may meet all the ordinary indications in treatment, there are occasions when one is distinctly preferable to the other, or when the appliances may be interchanged with advantage.

The object of mechanical treatment is to free the spine from the influence of local deformity (Fig. 7) and from the deforming influence of the symptoms and complications of disease; to distribute the compensation which is necessary and to limit that which is unnecessary.

The test of an appliance is its efficiency in meeting these indications; the test of treatment is its effect upon the patient.

CATARACT EXTRACTION WITH THE IRIS RETRACTOR.*

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SINCE the early part of 1887 I have performed the operation for the removal of cataract by a method somewhat different from that usually adopted.

This I have placed before the profession at the Post-graduate School, at the State society, and also at the meeting of the New York Academy of Medicine; but, owing to unforeseen circumstances, there has been no opportunity for my colleagues of New York city to criticise or to discuss the merits or demerits of the retraction of the iris and the removal of the lens *at the same time*. I have therefore asked the honor and the privilege of bringing this matter before the congress, that it may meet with a full and fair discussion.

I shall always highly appreciate the opinions and suggestions of those who entered this special branch of surgery before I attempted to step on the first round of the ladder of fame, as well as the remarks of those who are working side by side with me in trying to advance this noble art, even though our efforts may not meet with the approval of all. Still, we hope these are but steps forward, if I may

call them such, that they may some day fall into the hands of men who may so improve them as to produce far better results.

I do not propose to discuss the merits of the different methods for the removal of the sclerosed lens which intercepts the rays of light, nor the special features of an operation with or without an iridectomy, as the advantages of a round and normal pupil are well known and obvious. Nor yet do I believe there will ever be a day when the conscientious surgeon will adhere strictly to only one method of operation, but will always adopt that which he thinks best for the ultimate good of his patients.

Therefore it is my intention in this paper to suggest some thoughts and a method that have occurred to me in the course of my limited number of operations, and to explain the use and advantages of the simple little instrument, "the iris retractor," that I have used whenever possible during the past four years.

As regards the *time to operate*. I think this should be decided, when we find the cataractous lens sufficiently hardened to admit of its ready removal, without any reference to what the vision in the other eye may be. If our patients are willing to have an operation performed, even though the vision may be good in one eye, say $\frac{2}{8}$, then you are justified in taking the slight risk there may be of failure, for the benefit of the improved binocular field of vision. The blindness on one side renders our patients at a disadvantage, as some of my cases will show; at the same time we make a useless eye ready for practical vision when its fellow lens becomes opaque.

Preparation for the Operation.—We may do nothing as regards the ultimate success except so far as we may have the mind of our patients completely at rest. In the light of the present statistics, the chances of failure in a healthy eye, if a cataractous eye can be healthy, are very small, as you may readily see by the reports of cases lately published. So I do not in any way prepare my cases beforehand, and particularly avoid the use of atropine before the operation.

Operation.—At the time when I am ready for the operation I instill a sufficient quantity of a solution of cocaine (four per cent.) to render the cornea anæsthetic, but not to dilate the pupil. The patient is then placed on a steady table or bed with a good clear light on the eye, and the lids are opened with the speculum. The eye is then washed with a solution of boric acid, while my instruments are all placed in boiling water and then on a clean towel and covered until wanted.

Section.—This I consider the most important part of the operation, as upon a good section, I believe, depends the ultimate success. This should be in the same plane, except at the finish, as I shall describe. I wish to avoid the conjunctival flap, and by the perfect coaptation of the wound in the cornea we may avoid slow healing, septic infection, and prolapse or incarceration of the iris. I make the section either upward or downward according to the eye to be operated upon—as upward in the right eye, downward in the left, or, if the operator is ambidextrous, then both sections may be made upward, as I consider the

* Read before the Section in Ophthalmology of the First Pan-American Medical Congress.

upward section preferable. I prefer, in making my section, to cut always toward myself, for in so doing we produce a much smoother and clearer cut. I always make the puncture and counterpuncture wholly within the corneal tissue, through its transparent margin, about one millimetre from its periphery, and so that the cutting edge of the knife will just cover the pupillary edge of the iris on the side toward which I propose to make the section. If possible, I rapidly make the section of the cornea with three distinct cuts: first, carrying the point of the knife, as soon as the counterpuncture is made, upward and forward, cutting one side of the cornea; then the heel of the blade is drawn upward and backward, so cutting the opposite side; then, turning the knife on its long axis, the section is completed with the third cut by pushing the knife steadily forward until released. I think De Wecker, of Paris, first suggested this method, and I prefer it to all others. As I complete the section in the above manner, the knife comes out some distance from the scleral junction, leaving room for the iris to be tucked in when drawn back by the retractor.

At this time we may have prolapse of the iris; if so, it must be returned with the spatula if we wish to save the iris; but, if not, then it may be drawn out and cut off if we decide an iridectomy is best. Another complication that may occur at this stage, particularly in very old people, is the rupture of the capsule or the zone of Zinn with the presentation of the lens at the section; if so, it must be removed at once by pressure on the cornea. I am inclined to think that should there be any tendency to prolapse at this stage, it is better to perform an iridectomy at once, to prevent any future prolapse as the healing process proceeds. If no complications arise, I then proceed to open the capsule by a peripheral incision, passing the cystotome inward to the pupillary space, then under the iris, and sweep it around beneath the edge so as to cut the capsule in more than one third of its periphery on the same side that the section has been made.

My next step is the drawing back of the iris and the extraction of the lens. At this point I wish to say a few words in reference to my method of the retraction of the iris with the little instrument called the "iris retractor," which I now present, claiming that I first adopted and practiced this method. In the *Archives of Ophthalmology*, May, 1888, page 60, Dr. Herman Knapp states that before and since he read his first paper on this subject, he had drawn back the iris toward its periphery, where he found that membrane somewhat rigid, using the small wire loop; but he does not state that he held the iris *drawn back* until the lens was removed, so I infer that he simply drew it back to relieve its rigidity, or to break up any adhesions that may have formed between the iris and the anterior capsule.

Again, I find an article by Dr. Barton Pitts, of St. Joseph, Missouri, in the *Medical Record*, October, 1890, wherein he describes a method of operation by which he draws back the iris with the same wire loop which Dr. Knapp used, and held it there until the lens passed out by pressure on the cornea. In the same paper Dr. Pitts criti-

cises my retractor, when, according to his own admissions, he has never seen my instrument, nor does he even know its construction, but has simply followed out my ideas of drawing back the iris and holding it *tucked back* until the lens is removed. He does not give me the credit of having first adopted that procedure, though his ideas may be original with himself.

I will quote Dr. Pitts's words: "By Dr. Valk a distensible shield with two knobs is proposed. The method of its manipulation is to insert through the corneal wound, cover the surface of the iris, and, by the knobs holding in the pupil, retract the iris upward as far as necessary and slide the lens over the front surface of the shield. Dr. Valk reports good success with it. I have not tried it, nor am I familiar with its pattern except from description. I should think, however, it objectionable on the score of occupying considerable space, already too limited. Its insertion, moreover, I think awkward, and, in the event of sudden movement of the eye under operation, its presence in the anterior chamber especially dangerous. . . . To overcome the resistance of the iris and frequent rigidity of the pupil, I have for two years resorted to the same instrument recently mentioned by Dr. Knapp as used by him—that is, a fine wire loop attached to a delicate handle. This instrument, which can be easily and thoroughly sterilized, I insinuate through the corneal wound into the pupillary space and retract the iris into the superior triangular space, and by a gentle pressure backward and upward of a strabismus hook, applied against the lower edge of the cornea, I have little difficulty in the delivery of the lens and without material injury to the iris, and in no instance accompanied by loss of a single drop of vitreous or followed by septic infection of the eye." I have quoted his remarks thus fully that you may note the different methods, and also if this little instrument is at all objectionable because it occupies too much space, or is especially dangerous in any sudden movements. I have never found it so, and in reality this retractor of mine does not take up any more room than the wire loop; nor is it *awkward* in any sense, as it can be easily removed from the eye by simply tipping up the ends of the blades, thus instantly releasing the iris, and at once removed if necessary.

It seems to me that the construction of this little instrument is extremely simple, having only two small smooth knobs on the ends of a forceps with crossed action, and the size of the ordinary iris forceps. These little knobs, standing at right angles to the axis of the ends of the blades and pointing downward, simply hold the iris tucked back in the superior triangular space until the lens passes into the corneal wound, when the iris is at once and easily released.

When we consider the ease with which the lens passes out and the slight pressure required on the cornea—so much less than in the simple extraction universally adopted at the present day—I feel justified in claiming some merit and originality for this little retractor.

The eye being now ready for the extraction of the lens, it is grasped by the fixation forceps, directly opposite the section, and held steady by a careful assistant.

I now take the retractor in the left hand, and, with the blades closed and the set screw so arranged that the blades will open to about the diameter of the pupil, I insinuate the ends through the section to the pupillary space. The blades are now opened by pressure and the iris drawn back and tucked beneath the edge of the lower corneal section. Holding it steady in that position, a slight pressure is made on the opposite side of the cornea by a spoon or hook, causing the lens to rise up and easily pass out over the ends of the blades. As it does so, and as soon as the lens presents itself at the section, the retractor is pushed slightly inward, at once releasing the iris. The retractor is then generally removed with the lens lying in the concavity of the blades. As the lens clears away, we find the iris back in its position, not injured in any way, nor has it been exposed to the air, as may occur in simple extraction.

In case there should be any cortex remaining which I do not think will be absorbed or will interfere with the vision, I have reintroduced the retractor, and, drawing back the iris again, these masses are easily pressed out with the spoon. This completes the operation, and, the section being in perfect apposition, the speculum is removed, the eye gently closed, and the bandage applied.

After-treatment.—There seems to be as much diversity of opinion as regards the method of after-treatment of an operation at the present day as there is in the methods of operation, even so far as not to use any bandage or dressings of any kind. I note that Professor Knapp does not close the eye until about half an hour after the operation, in order to see if there is any tendency of prolapse. He only applies the cotton and isinglass slips, while Chisolm, of Baltimore, does not even apply any cotton; but as I have watched the healing process of my cases and noted the different conditions under which my patients have from necessity been placed, I am inclined to think that it is best to take a "happy medium" with a decided modification of the old strict method in use some years ago. Our first consideration must be the ultimate success of the operation, and next the daily comfort of our patients as the healing process proceeds. Bearing these two points in mind, it seems to me that there will be fewer movements of the eye and consequently less pressure on the sclera by the straight muscles if we close both eyes with a neat-fitting flannel bandage, with pads of absorbent cotton over the eyes. The slight restraint of a day or two in bed will not cause any distress, while the rest and quiet will assist in the rapid healing of the large corneal wound. I do not doubt but that those who use the modified dressings have as good success as can be wished for, though the above ideas seem to me the best that we may employ to complete the healing of our patients, according to the old motto, *Tuto, cito et jucunde*.

I remove the bandage from the eye not operated upon at the end of forty-eight hours, or on the second day, as I do not wish, nor do I see any need, to keep these old people in the dark any longer than is absolutely necessary.

In my last four cases I have tried to carry out my ideas of non-interference still further, as I sometimes think

that atropine may irritate an eye which has been operated upon for cataract, and lately I have not used this drug unless necessary—that is, when there were indications of commencing iritis; but I have changed the bandage every twenty-four hours, washing the lids carefully and gently with warm water, applying a little vaseline to the edges of the lids, and then replace the bandage.

Now I wish to make another suggestion in reference to that desire, which we perhaps all have, to look at the eye and to see the result of our work. Is it not better to leave the eye alone until all possible danger of complications has passed? Some of us have noted an opening of the wound with prolapse of the iris as late as the sixth day after the operation. Therefore I have decided to simply change the dressings every day for about ten days, unless there are some indications otherwise, and then open the eye in a darkened room, gradually accustoming it to light by the use of smoked glasses.

Professor P. D. Keyser, of Philadelphia, and Dr. W. Buss, of Bradford, Pa., have used my retractor in several cases and have reported to me good results, each being pleased with the easy exit of the lens and the rapid healing of the wound in the cornea.

In conclusion, I do not think the surgeon who considers the best interests of his patients and the various conditions that may arise during an operation for the removal of cataract will persistently adhere to any one method of operation. In my own cases I have been compelled to lay aside the retractor in four cases out of thirty-three. So the surgeon must adopt that method which to him at the time seems best for the ultimate success, either with or without an iridectomy; but we can adopt some method and endeavor to carry it out, unless we find it will endanger the final results.

Some of my cases have required a subsequent discission; but as each case of that kind requires special study and methods in itself, I will not make any particular reference to it, except so far as I consider Dr. Knapp's remarks as to the operation, delivered at Detroit, as the best, and giving the final results required.

In the following table I give the histories of twenty-nine cases in which the retractor was used, being private and clinical cases. In some of my dispensary patients I could not get the final tests, as they would disappear after the healing of the wound.

In all these cases I have used the *retractor*, though some of them have presented indications almost against its use; but the final results have seemed equal to those of any other method, while in four cases not reported I could not use the retractor and the final results were not as satisfactory, and in one case, where I performed an iridectomy, the end was total loss.

This method is perfectly safe and the retractor can, if necessary, be quickly and easily removed from the eye, while the objection once raised, that it is another instrument introduced into the eye, is not tenable, as this instrument is so easily sterilized, and, besides, I think there is less manipulation of the iris than in simple extraction, particularly if the iris is prolapsed at the exit of the lens.

No.	Sex.	Age.	Name.	Eye.	Iris pro- lapsed.	Condition, complica- tions.	Results.	Remarks.
1	M.	35	William C.	R.	No.	Traumatic.	$\frac{20}{20}$ w. + $\frac{1}{2}$.	Incarceration of iris.
2	F.	55	Ellen C.	R.	Yes.	Senile.	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
3	F.	55	"	L.	"	"	Shadows.	
4	F.	60	M. A. L.	L.	No.	"	$\frac{20}{20}$ w. + $\frac{1}{2}$.	Discission, six months.
5	F.	60	Mary W.	L.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$ \bigcirc + $\frac{1}{15}$ c., ax. 180° .	
6	F.	72	Sarah C.	L.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
7	M.	35	Patrick K.	R.	"	Immature.	$\frac{20}{20}$ w. + $\frac{1}{2}$.	Incarceration of iris.
8	M.	53	Antonio L.	R.	"	Senile, black.	$\frac{20}{20}$ w. + $\frac{1}{2}$ \bigcirc + $\frac{1}{15}$ c., ax. 90° .	
9	M.	53	"	L.	"	"	Successful, but no final test.	
10	F.	30	Dora A.	R.	"	Synechia, soft.	$\frac{20}{20}$ w. + $\frac{1}{2}$.	Spec. iritis before operation. Vitreous lost.
11	M.	50	Italian.	R.	"	Dislocation, up.	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
12	M.	33	Bernard C.	R.	"	Soft.	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
13	M.	50	Dennis L.	R.	"	Glaucoma.	V. = 0.	Incarceration of iris. Discission, six weeks.
14	M.	5	Patrick L.	L.	"	Senile.	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
15	F.	66	Mary C.	R.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
16	F.	66	"	L.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$.	Incarceration of iris. Iritis, plastic, tenth day. Discission, four weeks.
17	F.	70	Margaret R.	L.	"	"	V. = shadows.	
18	M.	50	Henry C. T.	R.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
19	M.	55	Isidore T.	L.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$.	Discission, five months. Vitreous lost.
20	M.	50	Michael M.	R.	"	"	V. shadows?	
21	M.	70	Geo. S. B.	R.	"	"	$\frac{20}{20}$ w. + $\frac{1}{15}$ \bigcirc + $\frac{1}{12}$ c., ax. 180° .	
22	F.	70	Miss B.	L.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$ \bigcirc + $\frac{1}{15}$ c., ax. 180° .	Iritis, plastic.
23	F.	77	Minnie M.	R.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
24	F.	77	"	L.	"	"	V. = shadows.	
25	M.	74	Anton M.	R.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$ \bigcirc + $\frac{1}{15}$ c., ax. 180° .	To have discission.
26	F.	54	Julia B. F.	R.	"	Congenital, partially absorbed.	$\frac{20}{20}$ w. + $\frac{1}{2}$.	
27	F.	47	C. H. B.	R.	"	Senile.	$\frac{20}{20}$ w. 12 D.	
28	M.	58	F. R. H.	R.	"	"	$\frac{20}{20}$ w. 10 D. \bigcirc 4 D., ax. 180° .	To have discission.
29	F.	55	C. D.	L.	"	"	$\frac{20}{20}$ w. + $\frac{1}{2}$ \bigcirc + $\frac{1}{5}$ c., ax. 180° .	

Final results: $\frac{20}{20}$ - 1; 1; $\frac{20}{20}$; 2; $\frac{20}{20}$; 8; $\frac{20}{20}$; 5; $\frac{20}{20}$; 3; $\frac{20}{20}$; 4; shadows, 4; no result, 1; no test, 1.

I will close by stating that by this method I do not meet with any more accidents or risks, as loss of vitreous, etc., than usually occur by other methods, and I believe that with careful use the retractor, as I now present it and as I have used it for the past four years, will be of material service to the ophthalmic surgeon in the removal of a cataractous lens.

The instrument may be procured from E. B. Meyrowitz, of New York.

BUBOES AND THEIR TREATMENT.*

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INASMUCH as this affection is met with very frequently, not only by the surgeon, but also by the general practitioner, I have decided to offer it for your consideration. Moreover, it is a subject upon which very little attention has been bestowed.†

The term bubo is derived from *βουβών*, the groin, and at first was used to represent a glandular tumor in the groin; at a later period the term included a glandular tumor in any locality. At present it is taken to mean an enlargement produced by a lymphadenitis in the groin. The superficial inguinal glands of the groin, numbering from eight to twelve, are divided into two groups. The superior group, which lies parallel to Poupart's ligament, receives the lymphatic vessels from the skin of the scrotum, penis (labia majora and minora in females), the

perineal and gluteal region, and the mucous membrane of the urethra. The inferior, which lies in the axis of the thigh near the saphenous opening, receives the vessels from the lower extremity and communicates with the superior by vessels running from above downward. This arrangement is such that venereal buboes are nearly always situated in the superior group, but occasionally the poison passes these to reach the lower group, and is of course then situated below Poupart's ligament. When a patient presents an inflammatory swelling in the groin the first thought is, Where is the sore? but although strongly probable that the trouble has a venereal origin, such is not necessarily the case, as a number of other causes may be at work in the production of a bubo. This affection may result from strains—violent muscular exercise, as lifting, mounting a horse, etc.—ingrowing toenail, injury to the foot, ulcer, direct traumatism, herpes, furuncles, and eczema, as well as from venereal disease. Therefore buboes may be classed as venereal and non-venereal. Venereal bubo may follow either gonorrhœa (with or without) chancreoid ulcer or syphilis.

They may also be classified, according to course—

1. Simple inflammatory.
2. Virulent.
3. Specific—where due to syphilitic infection.

Buboes are said to be rarely produced by gonorrhœa alone, but upon several occasions have I seen them complicating this affection with no syphilitic or chancreoid lesion, and very frequently a slight inflammation of these glands not followed by suppuration. A hypertrophied condition of these glands is a frequent result of repeated attacks of gonorrhœa. The most common cause of bubo is a chancreoid. About thirty-three per cent. of chancreoids

* Read before the Falls City Medical Society, April, 1892.

† Since this paper was read a number of articles have appeared which would appear to contradict this statement.

are followed by bubo, and half of these are simple, notwithstanding Ricord's law that chancreoid virus, if absorbed by a gland, produced virulent or self-inoculable bubo. The adenitis usually appears upon the same side as the original sore; occasionally it is on the opposite side. If sore in the median line, especially at the frenum, the enlargement occurs on both sides. In about thirty-one cases in a hundred the gland at the root of the penis is involved. The size of the chancreoid has nothing to do with the virulence of the resulting bubo. The retention of the discharge is, however, no unimportant element in the production of buboes, by concentrating the poison, as in phimosis. The bubo may appear at any time during the course of a chancreoid. A Hunterian true syphilitic sore is almost always followed by an infection of the lymphatic chain of the groin within two weeks; subsequently all the lymphatic glands are enlarged. This infection of all the lymphatic glands is characteristic of syphilis, as is the chronic course of the bubo. On this account it is called indolent. There has been considerable discussion as to whether a venereal bubo can occur without an initial sore. It is at present generally conceded that in every case a lesion is present, which may, however, be so small as to escape the notice of the patient.

Simple bubo is a simple inflammation of one or more glands in the groin, produced not, as was formerly supposed, by sympathy, but by the poison conveyed through the lymphatic vessels without affecting the vessels, or at most causing a very slight inflammation of their coats. The irritant, having come in contact with these glands, excites an increase of the blood supply. Cells are infiltrated into the spaces of the glands, and also in the periglandular tissue, the amount of this infiltration depending on the amount and character of the infectious material.

If only sufficient to excite a slight inflammation, as in simple bubo, the gland becomes only a little enlarged and tender, and will soon return to normal by the absorption of the inflammatory products. If, however, the irritant is more powerful, as after chancreoid, the distention becomes so great that the cells in the center are deprived of their blood supply and break down, forming a purulent focus which acts in turn as an irritant, and as a result the whole gland is destroyed and an abscess is the result. The wall of this pus cavity is formed by a very much thickened capsule, which becomes united superficially to the skin. The skin also becomes inflamed, and after a time, along with the abscess sac, becomes thinned, as a result of the pressure from within, and rupture of the abscess occurs, unless relieved by incision. The pus continues to discharge for quite a while, owing to the size of the opening, and finally after weeks, and perhaps months, the sac closes, leaving an indurated spot with a ragged, irregular cicatrix.

The virulent bubo follows a course similar to the simple, save that it develops more rapidly, and immediately assumes the ragged form of a chancreoid when evacuation takes place, the pus inoculating any abraded surface with which it comes in contact. It is also liable to attacks of phagedæna, which is not the case with the simple.

The syphilitic bubo differs from both of these in being

slow in development, with the same round-celled infiltration which is found in chancre. This, after an indefinite period of time, undergoes resolution, and very rarely does suppuration take place. Only in strumous patients, where the patient suffers from what has been called galloping syphilis, does suppuration take place.

Symptoms.—Simple bubo at first gives rise to a discomfort while walking, and a feeling of fullness in the groin. Examination at this time reveals a small, rounded, or oval swelling, which is movable under the skin and tender to the touch. These symptoms increase, and the tumor becomes more elongated and less movable; the skin over it becomes red, tense, and perhaps oedematous. Pain is a marked symptom at this time, and the patient is unable to move about. After from one to four or five weeks resolution may take place, leaving a chronic induration, or the skin will become thinned and shining when suppuration has taken place and the abscess bursts with a protracted cure. At first the virulent bubo takes this same course, but is developed more rapidly, and *always* ends in suppuration. The periglandular structure may suppurate, and, if so, will open first and discharge non-inoculable pus; later, when glandular abscess opens, will be inoculable.

The syphilitic bubo runs an essentially chronic course without pain, usually giving very little annoyance to the patient, except from its size, and finally undergoes resolution.

Diagnosis.—A virulent bubo can scarcely be told from a simple one before suppuration occurs. The rapidity of its course, self-inoculability, and the severity of the symptoms are the only guides. After rupture the ragged appearance assumed by the edges of the ulcer (abscess) will decide. The syphilitic bubo can be told by the history of a chancre in every instance, and by its chronic course and painless character. It is never self-inoculable.

Treatment.—As regards prophylaxis, little can be done to prevent syphilitic bubo, while the liability to its occurrence after gonorrhœa and chancreoid may be very much lessened by perfect quiet, avoidance of strong injections, with perfect cleanliness. Bumstead and Taylor maintain that cauterization of the chancreoid does not lessen the liability to bubo; but I think an early cauterization, with perfect cleanliness afterward, will be found to lessen the frequency of the glandular inflammation. I think most of the later writers will bear me out in this statement. All of the text-books advise an attempt at aborting the inflammation, and, failing in this, try to aid suppuration. The means proposed for this are both numerous and unreliable. Older authorities recommend painting with iodine; later ones think it harmful, and with good reason, as the inflammation is undoubtedly increased, as is the suffering of the patient in a direct ratio. Mercury preparations, lead and opium, aconite and belladonna, cold, heat, blisters, leeches, pressure, etc., have been proposed, most of which do very little if any good, and some of them positive harm. Better results can be obtained from heat or pressure with a spica bandage than from the other methods of abortion. Why should any attempt be made to abort a bubo when you are unable to distinguish a simple from a virulent inflammation until sup-

puration and rupture occur? A virulent bubo of necessity suppurates, and the simple bubo very often takes this course, and in the majority of cases it is a simple waste of time to attempt to abort the trouble. After suppuration has taken place, every one will agree that an incision is the proper procedure. Until quite recently surgeons have seemed afraid to make a free incision, opening the abscess by a puncture, and leaving the patient to suffer for a long time with a discharging sore. The usual treatment now in vogue after suppuration has taken place seems to be a free incision, followed by the use of the scoop to remove undestroyed parts of the gland. Dr. Herman Kimmel, as early as 1882, recommended the thorough removal of all the glands, healthy or unhealthy, thorough cleansing of the wound after the slight hemorrhage had been stopped, placing drains in the pockets if any were present, and closure of the wound by suture. He then applied pads of bichloride gauze, and retained them by a roller with firm pressure. This dressing he left undisturbed for a week.

The plan which I have used in my last dozen or more cases is by no means original, and was first brought to my notice by Dr. ApMorgan Vance, of this city. I think it possesses so many advantages over the other plans of treatment that it should become more generally adopted. Instead of wasting time trying to abort the inflammation, and after watching the case for two or three days, if the patient still suffers much pain and inconvenience, I resort to the immediate removal of all the inflamed glands. A free incision over the inflamed tissue down to the glandular structure will reveal the inflamed gland lying loosely in its capsule. Very little difficulty will be experienced in its removal. The hemorrhage should be controlled and the wound irrigated with hot water containing some antiseptic; if preferred, dried and sprinkled with iodoform; then packed with iodoform gauze and covered with a compress fixed by a spica. The dressing should be changed on the second day, and at longer intervals after that time. The advantages afforded by this method are—

1. A complete and rapid recovery—at the very longest, in two weeks.
2. Relief of the patient from a number of weeks' suffering and inconvenience, as it is possible for him to be out in three days, and the pain is instantly relieved.
3. The almost certain prevention of a virulent sore, and this of necessity excludes the possibility of the wound being attacked by phagedæna.
4. The absence of danger or difficulty in carrying out the treatment.
5. The relief to the surgeon from the well-worn phrase, "Doctor, I am no better." Hearing this every day or so for a number of weeks grows very tiresome.

The only objection that could possibly be offered to this plan of treatment is that it leaves its history in the scar. But what plan of treatment does not leave a scar? And I think very little stress can be laid upon a slight disfigurement in this locality. All I ask for the plan is a trial, and I am positive that, once used, no other plan will take its place.

558 SECOND STREET.

A CASE OF SARCOMA OF THE SOFT PALATE, ILLUSTRATING THE DEGENERATION OF A BENIGN (PAPILLOMA) INTO A MALIGNANT GROWTH. *REMOVAL OF THE SOFT PALATE. DEATH.**

By W. K. SIMPSON, M. D.

The possibility of the degeneration of benign into malignant growths is a matter of such intense interest that any data bearing on the subject should be brought to the surface and receive the consideration that its importance demands.

The thorough understanding of this possibility will serve to guard our prognosis in cases seemingly benign, and will guide us in determining to what extent operative procedures may be instituted. Although the subject of this degeneration has received exhaustive treatment quite recently at the hands of Dr. Felix Semon, especially as regards laryngeal neoplasms, and although the conclusions of his investigations are decidedly against the change taking place as often as was supposed, still, that there are unquestioned instances of this degeneration I think there can be no reasonable doubt. Dr. J. Solis-Cohen published one in the proceedings of this society for 1892 under the title of Adeno-sarcoma of the Larynx at the Site of a Papilloma removed Sixteen Years previously.

Without going into any research regarding the literature of the subject, I will simply offer the history of the following case, imperfect, possibly, in some of its details, but extremely convincing and instructive in others.

A further object in presenting this case is to preserve the sequel of its previous publication.

The case was first reported by Dr. G. M. Lefferts at the session of 1889 of this society under the title of Multiple Papillomata of the Velum, illustrated and published in the transactions of that year, a full report of which I herewith append.

"The differential diagnosis in cases so well marked and distinctive as these presents no difficulty. Microscopical signs alone will suffice for the recognition of their true nature. Although papillomata are the commonest variety of true neoplasms of the fauces, a growth the size of that shown in the present instance must be unusual.

"It occurred in a girl aged sixteen years, who only accidentally noticed its presence in her throat when it had attained one third the dimensions here shown. Thereafter it grew rapidly and in eight months' time resembled the drawing. Little or no inconvenience was caused, dysphasia never being present, and but slight interference with the timbre of the voice. After anesthesia of the parts by cocaine the multiple tumors that made up the mass were removed by scissors curved on the flat. The uvula was not involved and was left intact. A superficial stellar cicatrix now shows the former site of the sessile portion of the mass. There have been no signs of recurrence."

This report was made three months after operation.

Sixteen months after removal of the original tumor by Dr. Lefferts a reappearance of growths similar to the ones removed occurred, at which time Dr. Lefferts kindly placed the patient

* Read before the American Laryngological Association at its fifteenth annual congress.

in my care for treatment, at that time May 14, 1890. I found several distinct papillomatous masses of various sizes springing from different parts of the soft palate, principally about the free margin, one or two extending down on the left anterior palatine pillar. They were of grayish-red color, freely movable on more or less of a pedicle, and with every physical appearance peculiar to benign papillomata, and, as Dr. Lefferts remarked, absolutely identical with the previous ones he had removed. There was no other evidence of inflammatory changes or thickening of the soft palate, and the seat of the original growth was smooth and free from any attempt at recurrence. Believing, from their appearance and from the previously published record, that they were papillomata, I removed most of the growths by galvano-cautery knife.

From May 14, 1890, to July 26, 1890, I removed several of these growths which made their appearance from time to time, using at times lactic acid in the proportion of from fifty per cent. to full strength and the galvano-cautery, and although at times I removed nearly all of the soft palate, thinking I was completely clear of all morbid tissue, still the cavity left by removal would become most rapidly filled up by a return of the growths, the short space of a week sufficing at times to fill a very large excavation.

Coincidentally with the recurrence of these tumors I noticed during this space of ten weeks that the growths were losing their benign appearance and infiltration of the soft palate was taking place. Each recurrence became more dense, and by July 26th the soft palate presented one large inflexible indurated mass. By this time all resemblance to the original type of growth had disappeared, and it was very evident that it was becoming malignant in character, probably a sarcoma. A microscopic examination made at this time by Dr. George Thatcher, pathologist to the Presbyterian Hospital, revealed such to be the case. The patient complained of no pain whatever, but only a slight difficulty in swallowing and slight thickening of speech. There was no enlargement of the cervical glands. I decided that the most advantageous course to pursue was the removal of the whole soft palate from all its surroundings, and to that end I had the patient transferred to the Presbyterian Hospital, where, on August 2, 1890, Dr. Andrew J. McCosh removed the entire soft palate. The operation was done very carefully and skillfully by means of the knife and scissors, under cocaine, by spray and hypodermic injection of a four-per cent. solution. The operation was done with the patient in sitting posture and consumed about an hour and a half. One drachm (gr. ijss.) of the solution was used by the needle in addition to the spray, and not the slightest untoward symptom occurred, the patient exhibiting a most wonderful fortitude and aiding most materially by her intelligence. There was but slight hæmorrhage, which was easily controlled. After the removal in its entirety it was found to be almost one mass of very dense sarcomatous tissue with a slight adhesion (sarcomatous in nature) between the upper right posterior surface of the soft palate and the pharyngeal wall. This adhesion was thoroughly scraped. The patient made a good immediate recovery from the operation, and for a short time there was no return of the growth, but by October, 1890 (two months after removal), unmistakable signs of recurrence showed themselves, extending up the naso-pharynx, which precluded any idea of further operation. In October, 1890, the patient left the city and passed from under my observation. I learned, however, from the patient's family and attending physician that the growth extended very rapidly up in the naso-pharynx and down the pharynx, interfering with speech to the extent that she had to communicate by writing, and preventing deglutition, and she finally died of inanition April 26, 1891, two years and three months from

the first appearance of the apparently benign papilloma and eight months after the final operation.

In Conclusion.—There is possibly one link lacking in the complete chain of evidence in this case, and that is, I understand from Dr. Lefferts that the original tumor was not examined microscopically, but he expresses himself as being positive that there could be no doubt. His description and drawings certainly favor its being a papilloma, and when I saw the first recurrence I could not come to any other conclusion. That a microscopical examination is necessary for an absolute diagnosis I will not deny, but the microscope sometimes misleads or fails to absolutely confirm. Another point for consideration is the effect of the mode of removal of these growths. Though the cautery and lactic acid were effectual in removing them, I can not but think that the reaction from these agents is so great at times as to possibly favor a change to malignancy. That there would have been an extensive recurrence of the original growths there is not much doubt, and if the malignant degeneration could have been foreseen it doubtless would have been delayed by an early removal of the entire soft palate.

INDIRECT MASSAGE OF THE LENS FOR THE ARTIFICIAL RIPENING OF CATARACT.*

By EDWARD JACKSON, A. M., M. D.,

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC;
SURGEON TO WILLS EYE HOSPITAL.

At the meeting of the American Medical Association in 1892, Dr. Joseph A. White, of Richmond, Va., reported to the Section in Ophthalmology a series of cases in which the ripening of immature cataract had been hastened by the method suggested by Dr. T. R. Pooley, of New York (*New York Medical Journal*, December 26, 1885); and in the *Archives of Ophthalmology*, vol. xxi, No. 4, he published a paper upon the subject.

Since hearing Dr. White's report I have tested the method in a series of cases in which it seemed indicated by the presence of clear, soft cortex in the lens, and, finding it in the main satisfactory, desire to call your further attention to it. The following are abstracts of my notes on the cases in which the method was employed:

CASE I.—R. C., a draughtsman, aged sixty-two years; always near-sighted; applied August 13, 1891, on account of recent increase in difficulty in seeing. Each lens presented a moderate nuclear haze with apparently normal vitreous and fundus. His correcting lenses and vision were: R. — 1.50 — 0.50 cyl., axis 180° = $\frac{1}{5}$; L. — 2.50 sph. = $\frac{1}{5}$.

He was fitted with these lenses and kept under observation. The nuclear opacity continued to increase, until before the operation for preliminary ripening vision with glasses had fallen to R. $\frac{1}{5}$, L. $\frac{2}{8}$.

On June 14, 1892, the anterior chamber was emptied with a paracentesis needle, and massage of the lens practiced through the cornea. No immediate effect on the lens was noticed. On the 15th there was considerable conjunctival hyperæmia and pericorneal injection. On June 21st there still remained some pericorneal injection and the opacity of the lens had much in-

* Read before the American Ophthalmological Society, July, 1893.

creased. Four days later all hyperæmia and irritability had subsided.

July 23d.—No fundus reflex could be obtained in any part of the dilated pupil. The iris cast no shadow, but there still appeared to be fragments of clear cortex near the anterior pole of the lens. He was told to wait until cooler weather for extraction; but meeting with an accident, which confined him to bed for some weeks, did not return until December. Simple extraction was done December 8th, the lens proving to be entirely opaque, above the average size, with a great deal of soft cortex, which, however, came cleanly away without difficulty. Healing was normal except for some adhesions of the iris to the upper lip of the corneal wound, and a high post-operative astigmatism, which diminished slowly.

March 13, 1893.—With the right eye he could count fingers at six feet; left, with + 8 sph. \odot + 4 cyl., axis 153° , vision = $\frac{1}{2}$ mostly.

CASE II.—T. G., an iron worker, aged fifty-one years, had noticed failing sight for eight years in the left eye, and in the right for two months prior to his appearance at the clinic.

September 27, 1892.—His vision was, R. $\frac{5}{8}$; L. $\frac{3}{8}$.

In the right lens there was opacity of the anterior and posterior cortex in the lower portions, with good view of the fundus above. In the left there was nuclear and extensive cortical opacity, most dense at the anterior and posterior poles, with good fundus reflex in the margin of the dilated pupil.

September 29th.—Paracentesis and indirect massage of the lens was done on the left eye. Immediately after the operation there was a faint gray reflex from the lens surface not previously present.

October 1st.—The eye was free from hyperæmia. There was slight increase in the lens opacity and the patient was permitted to leave the hospital and go home.

October 18th.—The opacity of the visible cortex was complete. The anterior chamber distinctly more shallow than in the other eye.

October 20th.—Lens extracted, proving to be large with much soft cortex, which came away completely. There was more than the average reaction following extraction and slight iritis. However, in two weeks the eye was almost free from hyperæmia; pupil free and circular.

December 6th.—Without needling the capsule his correcting lens and vision were: R. — 0.50 \odot + 1.75 cyl., axis 30° = $\frac{1}{2}$; L. + 8 \odot + 2.50 cyl., axis 170° = $\frac{1}{8}$.

CASE III.—W. S., aged fifty-two years, piano maker. Finds all glasses that he can get unsatisfactory.

February 4, 1892.—Vision, R. $\frac{5}{8}$; L. $\frac{1}{8}$. Right, high mixed astigmatism and cortical opacity of lens in lower temporal quadrant, which does not encroach on the undilated pupil. Left, high astigmatism, radiating and cloudy opacity in both the anterior and posterior cortex, with full fundus reflex through most parts of the lens. R. + 2.75 sph. \odot — 5 cyl., axis 180° = $\frac{1}{8}$; L. not improved.

He was seen from time to time, vision continuing to grow worse until December 24th. In the left eye he was then only able to count fingers at two feet. Paracentesis with indirect massage of the lens was practiced.

December 27th.—Counts fingers at eighteen inches. Slight pericorneal redness. No appreciable change in the lens.

December 31st.—Counts fingers at nine inches. Marked increase of lens opacity. Eye free from hyperæmia.

January 5, 1893.—Vision reduced to perception of moving objects. Anterior portions of the lens opaque. Lens removed by simple extraction. Posterior cortex still fairly clear. The healing was normal.

March 18th.—R. with + 12 sph. \odot + 0.75 cyl., axis 145° , vision = $\frac{1}{8}$ without secondary operation.

CASE IV.—Mrs. J. G. B., aged sixty-four years, had noticed failure of vision in right for one year and in left for three months before applying, January 14, 1893. She has been wearing concave spherical lens 4 D. Vision: R. counts fingers at twelve inches; L. $\frac{5}{8}$.

The right pupil was occupied by gray opacity tinged with faint red reflex. The upper portion of the lens seemed slightly hazy throughout, with more dense opacity near the anterior and posterior poles. The left eye presented opacity mainly in the posterior cortex of the lower outer third of the lens with one spicule in the anterior cortex.

January 26th.—Condition unchanged. Paracentesis and indirect massage done on the right eye. After the operation there was a faint gray film at the surface of the lens, and a slight pink or faint claret color to the whole aqueous humor, probably from slight hæmorrhage of the iris. Two days later the eye was quite free from hyperæmia and no trace of red reflex visible in the pupil. Simple extraction was done February 7th.

April 22d.—Without needling the capsule her correcting lenses and vision were: R. + 8 \odot + 0.75 cyl., axis 180° = $\frac{1}{2}$.

CASE V.—Mrs. H., aged thirty-three years, housework. Several years ago first noticed failing vision in the right eye, and for the past three years there has been similar failure of the left.

February 14, 1893.—The right eye presents diffused opacities of the lens, hiding the condition of the vitreous and all details of the fundus. Good fundus reflex in all directions. Left nuclear opacity of lens; fundus dimly seen, apparently normal, and normal vitreous. Vision: R. $\frac{5}{8}$; L. $\frac{3}{8}$, slightly improved by a — 0.50 D. sph.

April 6, 1893.—No change in the condition of the eyes under treatment. No improvement by glasses. Vision the same.

I did paracentesis and indirect massage on the right eye, taking special care to withdraw all aqueous and making more vigorous and prolonged massage than in any of the previous cases. At the close of the operation a slight film was noticed at the anterior surface of the lens.

April 8th.—Free from hyperæmia. The film before noticed has disappeared.

April 20th.—The lens remains precisely as before the operation. Vision unchanged. Made small incision in the anterior capsule with Bowman's stout needle.

May 23d.—There is still but a very small strictly localized opacity at the seat of puncture of the anterior capsule. Vision, $\frac{5}{8}$. Extracted a comparatively clear lens, which came away completely through a rather small incision.

June 15th.—The eye free from irritability. Some wrinkling and opacity of capsule with diffused and localized opacities of the vitreous. The capsule was freely incised, and July 12th, with + 9 \odot + 4 cyl., axis 10° , vision = $\frac{1}{2}$ partly.

CASE VI.—Lewis C., aged fifteen years, peddler. Two years ago had pain and inflammation in the right eye attended with failure of vision.

February 18, 1893.—Drooping of the right upper lid, excluding that eye from vision. Chronic conjunctivitis with thickening of the lids. Pupils equal, normal. Right eye slightly divergent. Diffused cloudy opacity, apparently near the anterior surface of the lens. Good fundus reflex in all directions. Vision equal to $\frac{5}{8}$. Left eye, hyperopia: 1 D.; media clear; vision, $\frac{1}{2}$.

March 18th.—No change in the right eye under treatment. Paracentesis and indirect massage of the lens, decidedly more

vigorous than I commonly employed, produced no perceptible change in the opacity.

June 24th.—Vision, $\frac{3}{80}$. Appearance of lens as when first seen.

CASE VII.—A. O. S., aged sixty years, compositor. Had noticed failure of vision in the right eye for three years, progressive.

April 22d.—Vision, R., counts fingers at four inches. L. $\frac{1}{80}$.

By dilatation of the right pupil, vision was increased to counting fingers at four feet. The whole lens was found hazy, but with perceptible red reflex showing through it in all portions, there being no dense localized opacities. L., vision normal.

April 25th.—Paracentesis and indirect massage were done on the right eye.

April 27th.—Vision unchanged, red reflex still distinct in all portions of the pupil, eye free from hyperæmia.

May 2d.—With fully dilated pupil, counts fingers at ten inches. There is still faint red reflex visible through certain parts of the lens; marked increase of opacity in the anterior cortex.

May 9th.—No red reflex. Vision reduced to light perception.

May 23d.—Lens, mainly soft cortex, portions of the posterior layers of which were comparatively clear, was removed by simple extraction. Recovery normal.

July 7th.—11 D. sph. \ominus + 3 cyl., axis 190°. Vision = $\frac{1}{2}$.

As regards the efficiency of the operation, it will be noticed that the cases here reported may be divided into two groups. Case V, aged thirty-three years, and Case VI, aged fifteen years, showed no change whatever in the condition of the lens opacity as a result of the operation. As regards these cases, it was quite ineffective. The other five cases, ranging from fifty-one to sixty-four years of age, all show rapid and satisfactory increase in the lens opacity as the result of operation.

The practical efficiency of the operation is seen by the fact that in all five cases the vision was speedily reduced to light perception, all red reflex abolished, the extraction was complete, and good vision was obtained without any secondary operation.

I believe that in nearly all cases after extraction there comes a time when the vision is markedly improved by division of the capsule, and that in the majority a secondary operation will give better vision from the start. The point of importance here is that in these cases the indications for division of the capsule were no greater than after the extraction of cataracts that have attained complete maturity without surgical interference.

In the matter of efficiency my experience indicates that indirect massage is decidedly superior to Förster's operation. It would appear, however, that it is efficient only in senile cataract—that is, only when the opaque lens contains a rather large, firm nucleus.

In support of this, my colleague, Dr. A. D. Hall, informs me that he has twice tried the operation for juvenile cataract with precisely the same experience, not the slightest effect being produced on the lens opacity.

As regards the safety of the operation, I can only say that the ocular and physical conditions in these cases were not more favorable than in the average of cataract cases,

yet they exhibited little more reaction than would be expected from the puncture of the cornea and the withdrawal of the aqueous humor. There has not been any sign of iritis, or a single posterior synechia; and the eyes all did well at the time of extraction and subsequently.

There was nothing like dislocation of the lens produced in any case, nor do I think such an accident could ever result from the manipulations necessary to effect the desired maturity of the cataract, except in eyes in which it is liable to occur spontaneously, or from any slight blow or jar of the head.

As to the need for such an operation, it seems to me very important, both for physical, mental, and economic reasons, that cataract should be removed as soon as it has reached visual maturity—that is, so soon as it greatly interferes with the independence and comfort of the patient; if its removal is at all likely to restore the patient to comfort and independence. If, then, it is best that a cataract should also be surgically mature, that the lens should be completely opaque before its removal is undertaken, the need for such an operation as this seems clear and imperative. But whether it is really best to always secure complete opacity of the lens before proceeding to extract it may still be questioned. My own experience in extracting immature cataracts which still have some soft cortex, without a previous ripening operation, has been less satisfactory than that detailed with reference to this operation; yet, on the whole, it has been by no means unsatisfactory, and something might be said in favor of extracting immature cataracts as against their previous maturation.

The Method of Operating.—After the full dilatation of the pupil and the free instillation of cocaine, the anterior chamber is tapped with a paracentesis needle or broad needle, the incision being kept open by the point of the needle until the aqueous has been completely withdrawn with some little pressure of the fingers through the lids upon the globe. I use the fingers for fixation without a speculum. Then a tortoise-shell spatula is pressed upon the cornea within the area of the pupil and rubbed around in a circle, and then in radiating lines, stroking from the center toward the periphery of the cornea. During this latter manipulation the margin of the pupil will be seen to retreat before the spatula, so that a large part of the anterior surface of the lens can be acted on without pressure upon the iris. The manipulation is continued a minute and a half to two minutes and a half.

The after-treatment consists of closing the eye for a few hours, and the subsequent instillation of a mydriatic, until the eye is free from hyperæmia. The preliminary instillation of cocaine is repeated three or four times, using it more freely than I would for cataract extraction, with the idea of rendering the cornea more flexible.

To summarize my conclusions with reference to this method of ripening cataract:

It seems more certainly efficient than Förster's.

It is almost entirely free from danger.

It is probably a better means of avoiding prolonged practical blindness than the extraction of the immature cataract.

A CASE OF SUPERNUMERARY NIPPLES,

WITH REMARKS UPON THE SUBJECT
AND ITS LITERATURE.*

By ALBERT PICK, M. D.,

MANCHESTER, N. H.

Mrs. N. N., aged thirty-one years, an American, of very good physical development. She has given birth to two healthy children and has had one miscarriage.

She presents a supernumerary nipple on the lateral aspect of each mamma, about midway between the normally situated nipples and axillæ. The accessory nipple of the left gland is quite well developed, while the one of the right is rudimentary. The supernumerary nipple of the left mammary gland is also provided with a minute duct, and secreted milk during the period of lactation.

Remarks.—*Synonyms:* Polymastia, pleiomazia (accessory breasts); polythelia (*poly* + *θηλή* (thele), a nipple)—this term seems to have been first chosen by Duval.

After studying some of the best authors on pathological and comparative anatomy and evolution, one may form the following conclusions regarding the *origin, frequency, location, influence, and significance of supernumerary breasts and nipples*:

Origin.—The most fanciful ideas as to the origin of supernumerary breasts and nipples prevailed among the ancient and mediæval races of mankind, and these superstitious and, at least, baseless and unscientific explanations found their way even into medical works published not more than fifty years ago.

Meckel von Helmsbach was the first to try to explain this anatomical anomaly by the aid of embryology. According to him, in man as well as in some of the bats, Nature has "mapped out," as it were, besides the two normal mamillæ, two nipples in each axilla and one in the median line on the abdomen, a little above the umbilicus. In rare cases one or two of these, or all the five, are developed.

Darwin and Bartels, however, were the first who turned the attention of those interested in the study of defective, overdeveloped, or supernumerary organs in man to comparative anatomy and evolution; and on the hand of these two sciences offered satisfactory explanation.

Bartels states that the lemurs, a class of semi-apes, present, besides the two normal nipples, two supernumerary mamillæ, symmetrically situated on each side of the abdomen.

Mr. Darwin (*Descent of Man*, 1877, p. 37, note) observes in regard to this: "On the whole, we may well doubt if additional mammæ would ever have been developed in both sexes of mankind had not their early progenitors been provided with more than a single pair."

Professor Leichtenstern, basing his conclusions on modern embryology and the science of evolution, says: "With Darwin we explain the accessory mamma and mamillæ in man to be a *reaction* in the course of the evolution of man, standing in relation to our enormously distant ancestors of lower organization, who had more than two mammæ, and adjudge every human being the *latent capa-*

bility or inclination to produce more than two breasts. This inclination, resting upon inheritance from our ancestors, has, however, been reduced, in the course of millions of years, to *latency*, but not to such a degree as has been generally assumed, as it has been proved that accessory and rudimentary mamma and mamillæ occur much more frequently than has been formerly thought."

Frequency of Occurrence in both Sexes.—By careful observations made within very recent times it has been proved that, contrary to earlier views, the occurrence of supernumerary breasts and nipples is comparatively quite frequent, and, as far as the two sexes are concerned in this respect, the male sex offers as many, and probably a larger number of examples of this anomaly (Dr. Mitchell Bruce and Professor Leichtenstern).

Location of Supernumerary Breasts and Nipples.—In about ninety per cent. of the cases the supernumerary structures are situated below and in the same line with the normal breasts and nipples. Less frequently they are met with in the axillæ, in the umbilical region, on the thorax above the normal mammæ (*vide* my own case), and in other regions of the body. (A case of a woman is reported in the *Annals of Gynecology*, vol. 1889-90, with three legs, four well-developed mammary glands, and two vaginæ, the two supernumerary mammary glands being situated between two of her legs.)

Significance and Influence of Supernumerary Mamma and Mamillæ.—It was formerly thought that women with more than two breasts were especially "fruitful." Animals with more than two breasts usually do give birth to more than one of their species, the number of offspring being often in proportion to the number of mammæ they possess. This, however, as observation and statistics show, is not the case in the human race. Women with more than two mammæ are no more disposed to give birth to more than one child than women with the normal number of breasts (Professor Leichtenstern).

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TUE

PATHOLOGY OF DIABETES MELLITUS.

By WILLIAM MOSER, M. D.,

ASSISTANT PATHOLOGIST TO ST. CATHARINE'S HOSPITAL, BROOKLYN.

THE morbid anatomy of diabetes is very varied, and has been the source of much discussion. The disease presents no lesion or series of lesions peculiar to it. It is not a distinct disease. I mean that it has no common cause; that it has no characteristic symptomatology or pathology; that its principal clinical manifestations—viz., persistent sugar in the urine, etc.—are dependent upon various morbid processes. It appears evident, from a review of the literature, that cause and effect have frequently been confounded; that at autopsies we are generally dealing with effects and not with causes appears to have been overlooked. Laboratory experiments have not enlightened us much in solving the pathogenesis of this disease. The chemical theories so far advanced have proved unsatisfactory. What are the lesions found at autopsies? Theoretically we expect to find changes in the fourth ventricle, but practically they are conspicuous by their absence. Various lesions are found in the brain, such as hæmorrhages, tubercular meningitis, etc., but they have no causal relation to the malady in question. The lungs are frequently tuberculous, at times œdematous. Sanders and Hamilton regard diabetic coma as dependent upon fat emboli in the pulmonary capillaries, with consequent slow carbonic-acid poisoning. Of course this is theory. That fat emboli do occur in some cases is beyond dispute. Frerichs ascribed the coma to acetonæmia. This, too, is theory. The kidneys quite frequently show parenchymatous changes. The epithelial cells lining the looped tubes of Henle undergo glycoëmic degeneration. I have had occasion to see a few of Ehrlich's specimens, who first made known this fact. It is an observation easy to confirm. It is recognized by the chemical reaction with

iodine. These changes are regarded as secondary. The lesions in the liver are protean. In some instances the organ is found in a condition of passive hyperæmia, in others fatty, in still others slightly cirrhotic. In short, there is nothing from which to draw ætiological deductions, as many have done. The liver cells, too, give the reaction with iodine. The heart, spleen, and intestinal tract in cases seen by the writer showed nothing of pathological interest. Most writers refer to the fatty condition of the blood in this disease. While this condition of the blood is not constant, it may at times, as in a case which I saw, be so pronounced as to give the blood a milky appearance. It was so lipæmic in this case that when placed in a glass and left standing a thick layer of fat floated on the surface. The presence of fat emboli in the lungs in these cases is apparent. Is this lipæmic condition of the blood dependent on lesions or interference with the function of the pancreas? I am disposed to advance this theory for a few cases from the fact that the pancreas plays an important part in the pathology of this disease. "Facts bearing upon the relation of pancreatic disease to diabetes have been accumulating since Cowley first discovered calculi in the pancreas of a diabetic, and Bright's pancreatic cancer in a similar case" (Tyson). In a case which I saw in the Berlin Pathological Institute an aneurysm of the arteria pancreatica was found at the autopsy. Atrophy of the pancreas is not infrequent; hypertrophy and fatty degeneration of the gland cells are sometimes seen. I have seen a few cases of the latter condition. A good specimen came under observation only recently at St. Catharine's Hospital. It must be admitted, however, that these cases (atrophy, hypertrophy, and fatty degeneration) are not so clear as those mentioned above; that the factors which bring about these changes, as well as the pathology of those cases in which the organ remains unchanged, are problems yet to be solved.

158 ROSS STREET.

Treatment of Infantile Convulsions.—"M. Jules Simon recommends the following line of treatment of infantile convulsions: 1. Empty the digestive tract by an enema and by tickling the fauces to promote vomiting. 2. If the attack continues, administer ether or chloroform on a handkerchief. 3. Administer by the mouth, or if necessary by enema, repeated doses of the following mixture: Chloral hydrate, fifteen grains; bromide of potassium, fifteen grains; syrup of codeine, ten drops; tincture of musk, ten drops; tincture of aconite, ten drops; orange-flower water, three ounces and a half—this quantity to suffice for twenty-four hours. 4. When the attack is very grave, give a warm bath and apply a small blister to the back of the neck or the epigastrium, leaving it on for three hours. Antiseptic precautions should be observed and a poultice subsequently applied."—*Lancet*.

Antipyrine in Epistaxis.—"In idiopathic epistaxis Dr. Guénot, of Laroche-en-Breuil, has frequently found a local application of antipyrine to be of great service. As a rule, he employs a solution of the strength of 1 in 5, but in mild cases a 1-in-10 solution is strong enough. He directs the patient to pour a little into the hollow of the hand and to inhale it vigorously. In the case of young or intractable children this method is, of course, not applicable. Here a syringe must be used, and after the nostrils are filled they should be compressed for a moment so as to allow the antipyrine time to act."—*Lancet*.

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THE SANITARY BEARINGS OF MICRO-ORGANISMS IN A
WATER-SUPPLY.

DR. S. E. JELLIFFE has made a preliminary report of a six-months research concerning the water-supply of Brooklyn, giving special attention to those microscopical forms that are identified without culture. Like so many other of these investigations, Dr. Jelliffe's work is that of a volunteer, laboring with the zeal of a scientific man and for the good of the city where he has his abode. Massachusetts and Connecticut have done some exemplary work, through their respective State boards of health, in making lists of the organisms to be found in the drinking waters of the chief cities of those States. The individual workers, outside of New England, outnumber the officials who have sought to get at the facts in regard to city supplies. Among them are Mr. C. M. Vorce, who has made the water of Cleveland, Ohio, his study, Mr. G. W. Rafters that of Rochester, Mr. B. M. Thomas that of Chicago, and Mr. Mills and Mr. Kellicott that of Buffalo. Mr. Rafters has also made to the New Jersey State Board of Health a report on the causes and prevention of the deterioration of water in reservoirs. The last individual contributor is Dr. Smith Ely Jelliffe, whose report appears in the *Brooklyn Medical Journal* for October.

The full scope of Dr. Jelliffe's work involves weekly examinations of the Ridgewood supply for an entire year; his present report covers the first six months of that time, ending in May, 1893. His plan is to take a specimen of the water each week, involving an average of seven fields searched daily; his total fields in the six months were 1,381. His list of species numbers 112; 84 vegetable and 28 animal. A continuance of this research through the summer months is expected to materially enlarge the list.

The sanitary points brought out by this study are (1) that these species were not of themselves a material contamination of the supply, (2) that the species of more hurtful nature were not numerous in the fields, and (3) that relatively innocuous forms, which may break down under mechanical and other means, may become dangerous by affording a nutritious substance favorable to the development of pathogenic and other forms of organic life.

None too much labor, doubtless, has been expended in the identification of the *Hæmatozoon malarie*, the bacillus of typhoid fever, and the like, but the higher forms should still be remembered as having important relations to the health of a community dependent upon stored waters for their drinking and cooking supplies. As Dr. Jelliffe remarks:

"A perfectly pure water is free from all organisms, but, given a number of organized vegetable and animal forms which

may break down by mechanical or other means, there is provided immediately a more or less rich albuminous pabulum which will assist in the growth of both pathogenic and non-pathogenic organisms. In addition to this very evident proposition, many of the organisms observed give a more or less definite idea of the sources whence a water-supply is drawn." As an instance of the latter position, the author cites the fact that if the "blue-green *Alga*"—the *Oscillaria*, *Clathrocystis*, and *Palmella*—are seen, it is manifest that the water is taken from some shallow stagnant pool, and, so far as the Brooklyn water-supply is concerned, it is gratifying to note that there were only two species of *Oscillaria*, and they only in small quantities, found in the six months covered by this report. The discovery of epithelium scales in great abundance in the early spring was very suggestive of drainage contamination from barnyards along the streams and ponds contributing to the water-supply during times of excessive rainfall. This condition was found in April after the "water-famine" period had been closed by some severe rains.

Regarding those organisms, not *per se* pathogenic, but distinctly hurtful to the reputation of water supplies by rendering the odor and flavor of the water objectionable, Dr. Jelliffe reports negatively. The *Asterionella* and *Uvella* were present, but in quantities below the proportion to the cubic centimetre where they produce their objectionable fishy and acid odor and flavor. The summer months may be expected to show more numerous colonies.

Dr. Jelliffe's report is enriched with admirable illustrations and with lists and tables important to those who desire to study in similar fields. As it stands, this report can not be said to seriously incriminate the Brooklyn water-supply, but the second half-year, yet to be reported upon, may reveal more serious conditions. Considered as a volunteer task undertaken by one of our junior physicians, the report is both laborious and meritorious—a promise of good work yet to be performed.

THE FRAUDULENT DIPLOMA INDUSTRY.

RECORDER SMYTH used the most scathing language when recently sentencing a convicted dealer in fraudulent diplomas, one "Dr." Walter May Rew. The following paragraphs show that the Recorder recognizes even more fully than some of our own profession the grave consequences of this form of tampering with the general and ignorant public. Among other things, he said:

"In my judgment a more dangerous or more despicable crime could not be committed, especially by a man of the character of this prisoner, a man undoubtedly of education, who ought to be a man of refinement, and whose medical education ought to have taught him, as it does teach, that he is to act in a humane manner and not in such a way as to endanger either the lives or the comfort of his fellow beings. When such a man as he commits a crime of this character he is, in my judgment, worse than one who has not had the advantages which the defendant enjoyed.

"However, he is an old man, who at some time of his life, probably the greater part of it, has been engaged in an honorable occupation. He has been intrusted, as I understand it, by reputable members of his profession to help them with their work. Something must have happened, probably his poverty or his bad habit—his indulgence in opium—to have brought him to the disgraceful position in which he is placed to-day. I am not inclined to deal harshly with him, but an example must be made of him for the purpose of deterring other persons engaged in like business."

The Recorder then commented on the fact that the punishment of this criminal had grown out of an investigation made by one of the daily papers. The heavy expenses necessary to the successful carrying out of the inquiry—which was not so much the bringing of an individual criminal to justice as it was to point out the fact that the laws in many States of the Union were radically defective in this direction—had been borne by the newspaper without municipal assistance. The fact that there are such poor laws for the protection of citizens against the acts of ignorant pretenders indicates, as the Recorder remarked, "a most extraordinary state of affairs, one that is enough to frighten the whole country. It is astounding," he continued, "for the people of the United States to find that they should run the risk every day in some parts of this land of the terrible mischief which has been committed by men ignorant of the profession which they undertake to practice." These are timely, although caustic, sentences.

MINOR PARAGRAPHS.

PIXOL, A NEW DISINFECTANT.

The *Lancet's* Russian correspondent cites a report published in a supplement to the *Army Medical Journal*, by Dr. Eberman, on pixol, a cheap disinfectant introduced by Dr. Raptchevski. It is prepared by dissolving a pound of green soap in three pounds of tar and slowly adding a solution of a little over three ounces and a half of either potash or soda in three pounds of water. At the time of using, one part of the syrupy liquid thus formed is added to nineteen parts of water, forming a five-per-cent. solution of pixol, and it is used of this strength for disinfecting linen and for washing the hands; for the disinfection of dejecta a ten-per-cent. solution is recommended. Such a solution has been proved to be fatal to the *Bacillus anthracis*, to the bacilli of typhoid fever and cholera, and to the cocci of suppuration. It is said that the preparation costs only about two cents a pound.

ECONOMY IN HOSPITAL CONSTRUCTION.

A REPORT on matters pertaining to hygiene and public charities as observed at the Paris exposition of 1889, by Professor William H. Chandler, of Lehigh University, United States commissioner to the exposition, has recently been issued from the Government Printing Office. It is a most valuable brochure, with handsome pictorial illustrations. Professor Chandler gives an interesting comparison of the air-space for each bed, and of the cost of construction for each bed, between various representative hospitals. The Antwerp Hospital has the air-space of 1,895 cubic feet, at a cost of \$1,284; the Berlin City Hospital, 2,028 cubic feet, at \$1,757; the Johns Hopkins Hospital, 1,761 (octagon) and 1,769 (common) cubic feet, at \$6,724; and St.

Luke's Hospital, Bethlehem, Pa., 2,045 cubic feet, at \$1,400. This is certainly very creditable to the designer of St. Luke's Hospital.

HAMBURG'S CENSORSHIP ON TELEGRAMS RELATING TO CHOLERA.

The history of sanitary conferences is not such that confidence is inspired by the promulgation of their conclusions. It is but a few months since the Dresden conference was held at the instigation of the German Government; and yet the Hamburg director of telegraphs has been authorized to exercise a censorship of all telegraphic matter sent from that city concerning cholera, in order, as it is alleged, to prevent the dissemination of false and sensational reports.

THE TREATMENT OF SYPHILIS AND MUTUAL AID SOCIETIES IN GERMANY.

La Province médicale for September 30th states that a large number of the German mutual aid societies refuse, by their by-laws, all assistance to those of their members that incur venereal diseases. The Prussian ministers of the interior, for hygiene, and for commerce have requested these societies to extend to their members affected with venereal diseases the medicines and professional services necessary to secure recovery. They urge the utility, from the standpoint of public health, of the prompt cure of these patients.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 24, 1893:

DISEASES.	Week ending Oct. 17.		Week ending Oct. 24.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	32	16	43	16
Scarlet fever.....	41	6	60	7
Cerebro-spinal meningitis....	2	2	7	5
Measles.....	63	3	93	3
Diphtheria.....	129	18	186	40
Small-pox.....	20	3	16	3

The Illness of Sir Andrew Clark.—We learn with great regret that Dr. Clark has been instantaneously stricken down by a cerebral hemorrhage. He was conversing with a patient when the blow fell. Two days previously he had occupied the chair as president of the Royal College of Physicians on the occasion of the Harveian oration.

A New Special Hospital.—The conductors of a newly proposed institution have filed a certificate of incorporation under the style of the New York Throat and Nose Hospital. The eye, the ear, and the lungs will receive due attention as well as the organs named in the title. Among the managers of this institution for the first year are Dr. E. J. Bermingham and Dr. J. J. Henna.

The New York Hospital.—Under the will of the late Charles B. Beck, this institution will probably receive about two hundred thousand dollars.

Change of Address.—Dr. W. H. Bates, to No. 64 East Fifty-eighth Street.

The late Dr. Edwin T. Doubleday.—At a stated meeting of the New York Hospital Alumni Association held on April

28, 1893, the following preamble and resolutions were authorized :

Whereas, It has pleased the Almighty Father, in his omnipotent wisdom, to remove from us Dr. Edwin T. Doubleday, a past house officer of the New York Hospital, an original member of this association, and its secretary since its inception; and

Whereas, Dr. Doubleday was, throughout his professional career, a devoted student and an accomplished practitioner, both in the hospital and in his private work; and

Whereas, He was a gentleman who by his kindly nature and his thoughtful interest in others endeared himself to all with whom he came in contact; therefore, be it

Resolved, That we, the members of this association, do hereby express our deep grief at his untimely death and our sense of personal loss. And be it further

Resolved, That we tender to his bereaved family our profound sympathy in their affliction. And be it further

Resolved, That a copy of the foregoing be presented to the family of the deceased and that it be sent to the medical journals of this city.

[Signed.] CHARLES A. POWERS, M.D.,
GEORGE A. RICHARDS, M.D., } Committee.
GEORGE H. COBB, M.D., }

The Death of Mr. Charles Clay, of Manchester, England, took place on September 19th. He was ninety-one years old. His first successful operation on a large ovarian tumor was done in 1842, by the long incision, and about five years later he did his first total removal of the uterus for fibrocystic growth. His innovations were opposed by not a few, but he had the support of Simpson, Braithwaite, and others to the extent that his services as an operator came into such great demand that about 1860 he was worn out and obliged to retire for a time. Clay was an archæologist and numismatist of renown. At one time he was the possessor of the largest collection of American silver and copper coins in the world—a collection that was purchased by the United States. He collected over one thousand different editions of the Old and New Testaments, which were sold for a very high price. He wrote on the rare topic of the currency of the Isle of Man. Mr. Clay was interested in geology, and published his *Geological Sketches of Lancashire* as early as 1839. He was formerly the senior medical officer and lecturer on obstetrics at St. Mary's Hospital, Manchester. He was the author of a *Handbook of Obstetric Surgery*.

The Death of Dr. Charles H. Fisher, of Providence, R. I., is reported as having occurred on Saturday, the 21st inst. The deceased was secretary of the Rhode Island State Board of Health.

The Death of Dr. John C. Peters, a retired New York practitioner, took place at his home, at East Williston, Long Island, on Saturday, the 21st inst., in the seventy-sixth year of his age.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 15 to October 21, 1893:*

HARTSUFF, ALBERT, Lieutenant Colonel and Deputy Surgeon General, is relieved from duty at Fort Omaha, Nebraska, and ordered to report in person to the commanding general, Department of California, for duty as medical director of that department, to relieve SMITH, JOSEPH R., Colonel and Assistant Surgeon General. Colonel Smith, on being relieved by Lieutenant Colonel Hartsuff, will proceed to Governor's Island, New York, and report in person on December 4th to

the commanding general, Department of the East, for duty as medical director of that department.

STARK, A. N., First Lieutenant and Assistant Surgeon, now at Fort Clark, Texas, will proceed at once to Fort McIntosh, Texas, and report to the commanding officer for temporary duty with troops in the field at Carrizo, Texas.

WOODSON, ROBERT S., First Lieutenant and Assistant Surgeon, now temporarily at Fort McPherson, Georgia, will return to his proper station, Fort Barrancas, Florida.

Society Meetings for the Coming Week:

MONDAY, October 30th: New York Academy of Medicine (Section in Public Health, Legal Medicine, and Medical and Vital Statistics).

TUESDAY, October 31st: Medical Societies of the Counties of Queens (semi-annual—Garden City) and Rockland (semi-annual), N. Y.; Boston Society of Medical Sciences (private).

WEDNESDAY, November 1st: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Bridgeport, Conn., Medical Association.

THURSDAY, November 2d: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Medical Society of the County of Orleans (annual—Albion), N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, November 3d: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, November 4th: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Answers to Correspondents:

No. 414.—The pathologists of all well-equipped hospitals are engaged in bacteriological work.

No. 415.—We do not think any medication will be of assistance.

No. 416.—If possible, postpone the operation until the child is five or six years old.

Proceedings of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Fifteenth Annual Congress, held in New York on Monday, Tuesday, and Wednesday, May 22, 23, and 24, 1893.

The President, Dr. MORRIS J. ASCH, of New York, in the Chair.

(Continued from page 452.)

Buccal Voice.—Dr. J. SOLIS-COHEN, of Philadelphia, read a paper on this subject. (To be published.)

Dr. G. M. LEFFERTS, of New York: Eighteen years ago I removed a papilloma from this man's larynx, and for ten years or more he was perfectly free from any signs of recurrence.

I do not know that I can add anything to what Dr. Cohen has said and to what will be demonstrated by an examination of the patient. The examination will speak much more strongly than any words of mine. I think the result that I saw there this morning is an exceedingly interesting and favorable one. There are no signs of any recurrence of the growth, but the

appearance is very curious. The parts are exceedingly difficult of identification.

The question of main interest to me at present is how the man articulates. I think you will all agree with me that it can only be by the use of the lips and tongue; this can be seen if you watch him closely. I had him phonate with his mouth wide open, and the pillars of the fauces remained motionless. Of course, it is out of the question that any sound comes from the region of the larynx.

Dr. DELAVAN: I think that the voice with which this man speaks is vastly superior to the artificial voice produced by a mechanical larynx, for the reason that with the latter the voice is so artificial, resembling as it does a boy's toy whistle.

There is one point in connection with Dr. Solis-Cohen's case which I consider one of its most important lessons. The case was not treated antiseptically. To my knowledge, two somewhat similar cases operated on in this city nearly died from iodoform poisoning. In a case of my own, operated on by one of our prominent surgeons for epithelioma of the tonsil, death almost resulted from the same cause. Fatal cases have been reported by foreign surgeons. The area of the wound left by the operation is so enormous that it is not difficult to suppose that rapid absorption of the drug may take place. In view of this danger, some substitute for the iodoform dressing might be used or the wound be treated without such dressing, as Dr. Cohen has indicated.

Dr. WRIGHT: I think it is impossible to keep a wound in this location aseptic. It is useless to attempt it. The wound communicates with the mouth, which is the source of all evil in the bacteriological way.

Dr. LANGMAID: I can not agree with Dr. Lefferts that the sound this man makes is produced by the tongue and lips. From the very superficial examination I have made, I am of the impression that the voice is produced by vibrations of the soft palate, which obtain re-enforcement in the nasal and buccal cavities. The articulation sound is produced by the teeth. It would be very interesting to notice what consonant sounds he is unable to produce. I hope it will be possible for Dr. Cohen to put this patient through a regular course of vocal production to see what he can do and what he can not do in the way of the gamut—the elevation and depression of tone.

Dr. SOLIS-COHEN: Of course the articulation is done by the tongue and lips, but the phonetic reed must be lower down. There is some tissue that is producing the sound. For the production of sound all we need is something to vibrate. Perhaps in this case the distended pharyngo-cutaneous structures act as a supplementary lung, driving the air through this phonetic reed, whatever it is, and the sound is articulated by the tongue and lips into speech, as in the normal condition.

The Cautey in Staphylotomy.—Dr. T. A. De Blois, of Boston, read a paper with this title. (See page 475.)

Dr. CASSELBERRY: I should like to ask Dr. De Blois if the pain following the operation by means of the galvano-cautey is not more severe than in cases where the uvula is simply clipped off with the scissors?

Dr. F. I. KNIGHT: It has always seemed to me that the use of any instrument which simply cuts the relaxed mucous membrane of the uvula transversely was wrong. It leaves a very painful sore. For years I have always drawn the relaxed membrane so well forward that when I use the scissors the cut is an oblique one and the raw surface presents entirely behind, as in Dr. De Blois's operation. We should have that object in view—to get the raw surface behind, and as a result there is almost no soreness on deglutition. Dr. De Blois spoke of cutting the muscle; it seems to me the object is only to cut the relaxed mucous membrane.

Dr. De Blois: In reply to Dr. Casselberry I would say that I had my own uvula cut with the scissors; it was cut off perfectly square, and for about four days I suffered very much, and was nearly starved. By the use of the galvano-cautey I have not yet seen any patient who suffered as much as I did. As regards Dr. F. I. Knight's remark concerning the structure of the appendage, I always supposed that the azygos muscle ran to the very tip of the uvula. I usually cut it off within half an inch of the velum.

A Case of Sarcoma of the Soft Palate, illustrating the Degeneration of a Benign (Papilloma) into a Malignant Growth; Removal of the Soft Palate; Death.—Dr. W. K. SIMPSON, of New York, read a paper with this title. (See page 498.)

Dr. WRIGHT: It is very difficult for me to conceive how such a case as this could be regarded as anything but malignant from the start. The fact that the microscopic examination was wanting seems to me almost a proof that it was malignant. This uncertainty of gross appearances was impressed on my mind during the past winter. A patient was operated on at Roosevelt Hospital for a papilloma of the subglottic space. An external incision was made, and a growth, apparently typical of papilloma, was seen. Dr. Asch, I believe, saw the case, or at least was present at the operation. There was no doubt in any one's mind but that we had to deal with a simple papilloma. A microscopic examination showed it to be an epithelioma, and the larynx was removed at a subsequent operation.

It is very hard, even microscopically, to prove or disprove these cases. You can not tell what there may have been below the papillomatous formation. We know that very frequently in syphilis, tuberculosis, sarcoma, and carcinoma the surface of the growth is covered by a papilloma, and unless you cut deep into the tissues it is impossible to say whether you have to deal with a benign or malignant growth.

The case related by Dr. Simpson ran the ordinary course of a malignant growth from the beginning. It is of course perfectly possible, according to modern pathological laws, that a malignant growth may appear in a benign tumor in the same way as it may appear in normal tissue; and that adds another element of doubt to these cases. It is now thought that a malignant growth is due solely to the potential energy in the cells, which will finally explode itself in the form of infiltration. In other words, a form of cell which does not contain this potential energy does not show this tendency to proliferate. It can not acquire the potential energy if it is wanting from the beginning.

Dr. J. O. ROE, of Rochester: I agree with Dr. Wright that it is impossible to say whether this potential energy is always present or not from the start. I have in one or two instances, however, seen tumors gradually change from a benign to a malignant form, as shown by careful microscopic examinations made at different times. One case was an angioma of the nose. I removed the growth, which was of quite large size, growing from the outer wall of the meatus. This growth was examined by competent pathologists, who pronounced it an angioma. It returned, and I removed it altogether three times. Each time it reappeared there was less vascularity—loss of the angiomatic character—and more sarcomatous elements, which after the third removal were very pronounced. The patient left the city for about two months. On his return only a small portion of the growth had reappeared, and before it had caused any marked obstruction of the nostril the patient died from asthenia. In this case there was an unquestionable transition from a benign to a malignant growth.

Dr. SWAIN: I have taken occasion in another place to report a case which is in point in the present discussion. The patient

was a man, sixty-three years old, who, five or six years before I saw him, became the subject of a tumor in the subglottic space, which was diagnosed as a simple myxoma. The patient had refused operation and the tumor was allowed to stay there, giving rise to occasional attacks of hoarseness and cough. Later these symptoms became more pronounced. An examination revealed a well-marked tumor of the false vocal cord, invading the anterior part of the true vocal cord. The growth was unhesitatingly pronounced an epithelioma; although it had some of the appearances of a papilloma, there was considerable infiltration. The original tumor was still *in situ*. The case seemed a very favorable one for thyrectomy, and the operation was done. The entire mass was removed, together with the original tumor. Sections were made of the original tumor and the epithelioma. The tumor itself was a simple myxoma, with an unusually large number of mucous glands in it; these had begun to undergo degeneration, as we see in a true adenoma of the mammary gland. The epithelioma itself was an absolutely typical one, with the pearls of epithelial cells deeply invading the structures beneath, down to the cartilaginous framework of the larynx.

The man recovered from the operation and died from an intercurrent pneumonia. The interesting point of the case is that the original tumor had existed for at least five years before the malignant growth made its appearance. That the irritation caused by this growth started up the potential energy of the cells producing the epithelioma is at least probable if not almost certain. Another interesting point is the fact that in the original growth itself the glandular tissue was undergoing this transformation from the appearance of a true adenoma to that of an epithelioma.

DR. GLASGOW: The subject of benign growths becoming malignant is an interesting one. In the case reported by Dr. Simpson, the weak point is the lack of a microscopical examination of the original growth. Semon has gone very thoroughly into this subject, and from his statistics it appears that this change occurs very rarely. From those statistics I have made up my mind, somewhat unwillingly, that such a transformation is barely possible. Such changes, however, take place externally, and I do not see why they should not take place in the larynx. A case has come under my observation that I considered originally to be a benign growth—a papilloma—and subsequently it seemed to change to a malignant growth; however, one important element in the case, the microscopical examination, was wanting. It occurred early in the seventies, and was a case of large multiple papillomata, nearly filling the larynx. I removed the larger part, but left a portion of the bone. About a year after the operation he came to see me. He was suffering great dyspnea, and on examination it was found that the growths had reappeared and completely filled the larynx. I was just about to leave for my summer holidays, and I told him that I would not be able to perform a thorough operation at that time, but would simply relieve his dyspnea, which I did by clearing out a large portion of the growths. I noticed then that this new growth had an entirely different appearance from the old one. The original growth had the ordinary pink hue of the papilloma, while this was very white. It had grown very rapidly, and taking this fact into consideration, and its changed appearance, as well as the man's cachectic look, I was inclined to believe that this new growth was malignant. The man died six months later.

If it can be proved that a benign growth may be changed to a malignant one by operative interference, it has a very important bearing on these operations, as in many cases removal of these growths is not absolutely demanded, as they simply cause inconvenience or some change in the voice.

DR. F. I. KNIGHT: This is the topic on which I asked for some information yesterday. I think that the testimony of the individual members here will be worth a great deal more to us than years of theorizing and microscopical work. As I said yesterday, I have never encountered but one case of tumor of the larynx wherein a growth which I had diagnosed as a simple papilloma proved to be malignant later. That case very probably was malignant from the beginning. It was a case of multiple papillomata, as was Dr. Simpson's. I should consider in his case that the probabilities are in favor of the growth having been malignant from the start.

In regard to the value of a microscopic examination of these bits of tissue which we remove from the larynx, if we get any positive evidence thereby, well and good, but I do not think the negative evidence is worth anything. I feel that I can judge better by the clinical aspect of the case, by its appearance, and by the changes which take place, than I can from the microscopic examination, and I should like to have the opinion of the members on that point; also let each one put on record to-day any case that has come under his observation in which a supposed benign growth became malignant.

DR. CLINTON WAGNER, of New York: In regard to the degeneration of a benign into a malignant growth, I wish to give an instance which came under my observation. The patient, a man, some years ago came to my clinic at the Metropolitan Throat Hospital. At that time there was a growth about the size of a large pea on the right cord, near the anterior commissure. I regarded it as a papilloma, and suggested the removal by the forceps, which could have been done at that time without difficulty. The patient declined operation and sought treatment elsewhere.

Twelve months later he again consulted me, at which time the whole box of the larynx was almost completely filled with growth. Several large pieces were removed by means of the forceps, but as the growth was found to extend downward below the cricoid cartilage, and as dyspnea was becoming more urgent each day, tracheotomy and thyrectomy were performed, the growth removed, and the patient discharged in a few weeks from the hospital. The tumor was submitted to Dr. Heitzmann for examination, who pronounced it a simple papilloma which had grown from a highly inflamed base, and, if it recurred, it would most likely come as a malignant growth. Both the curette and galvano-cautery were employed to secure thorough destruction of the attachments of the growth. Several months later the growth reappeared on the very same spot; it grew very rapidly. A portion of the tumor which was submitted to Dr. Heitzmann for microscopic examination was pronounced to be epithelioma. I resected the entire right half of the larynx. The man died fifteen days after the operation.

In another case—a sessile growth upon the right cord, the greater portion of which I removed—the patient, feeling so much improved, disappeared from observation; he returned for further treatment six months later. The growth filled the larynx almost completely. Tracheotomy and thyrectomy were performed, and the mass thoroughly removed. One microscopist pronounced the growth a simple papilloma, another a sarcoma, while still another an epithelioma papilloma. My own idea was that it began as a papilloma, but recurred as an epithelioma.

DR. F. I. KNIGHT: I think, in the first case reported by Dr. Wagner, the pathologist was probably wrong. A malignant growth developed in seventeen weeks at the site of operation, which shows that it was probably malignant at the time of first removal, or, at any rate, one would hesitate to accept it as a benign growth at that time.

Dr. REHRIG: It seems to me that the clinicians have entirely too much respect for the microscopist, and that the microscopist has entirely too much contempt for the clinicians. One is as liable to make mistakes as the other. The microscopist makes a number of sections from a growth, but it is impossible to say whether we have not left behind the cells which in the future will produce a malignant growth apparent even to the naked eye. We must go back and change the conception we have of the present laws of pathology. We must learn something more about the laws of biological growth. It can not be settled by bringing up this case and that case, because the question will always arise whether we have not left behind the malignant part of the growth, or whether the part of the mass selected for examination contained the characteristic evidences of its nature. Without a microscopic examination at the first, of course we, as clinical diagnosticians, lay ourselves open to justifiable criticism.

Dr. SWAIN: I do not see why Dr. Knight takes exception to the case narrated by Dr. Wagner. If that growth was malignant from the start, why was not the entire growth malignant? Is it possible for the base of a growth to be malignant, and its outermost or oldest portion to be non-malignant? I think not. We must look upon the portion of the growth that is uppermost as its oldest portion. That is a fair inference. If this portion of the growth was diagnosed as papillomatous, why was not the original growth a papilloma which had undergone this degeneration the occurrence of which we are discussing? A papilloma is a fairly easy growth to diagnose in one way. It has a certain characteristic appearance which a sarcoma or epithelioma has not, and if the upper portion of the growth in Dr. Wagner's case was pronounced by a skilled microscopist as being a papilloma on an inflamed base, I should like to know why that is not just exactly what we might have. Perhaps through the prolonged irritation of the base by the papilloma the epithelioma was developed.

Certainly, as Dr. Wright says, the general laws of pathology are still unsettled; but if there is any truth whatever in the Cohnheim theory of the potential energy springing out of the original embryological elements, I think just such a case as Dr. Wagner relates is one in point, and I do not think it should be ruled out on the ground that the pathologist made an error.

Dr. WRIGHT: In speaking of the malignant growths, I think we must rule out microscopical evidence of small-celled sarcoma. Under the microscope it is easy enough to recognize the spindle-celled or giant-celled sarcoma, but with the small-celled variety the clinical appearances are much more reliable than the microscopic. In the case of a small-celled sarcoma you will get all sorts of diagnoses from the microscopists. Without the history it is impossible to get two men to agree. Small, round-celled sarcoma, granulation tissue (syphilitic or tubercular), and lymphoid hypertrophy are frequently indistinguishable under the microscope.

Dr. MULHALL: I desire to ask a question on a subject about which I must confess a certain amount of ignorance. Is sarcoma of the upper air passages ever operable? In other words, is it justifiable to operate on sarcoma of the upper air passages? Does any one know of a case in which recurrence and death have not followed? If, perhaps, we saw these cases early enough, recurrence might be prevented, but, unfortunately, we do not see them usually until hæmorrhage and obstruction have taken place.

I would suggest an excellent subject for a paper to one who has access to the literature the following: "Is sarcoma of the upper air passages ever operable, in the light of past experience?"

Dr. FARLOW: Several years ago I removed with the snare

an outgrowth from the left side of the anterior part of the septum. The growth was pronounced by the pathologist a fibro-sarcoma. The operation was performed four years ago, and no recurrence has taken place, either on that spot or elsewhere.

Dr. B. ROBINSON, of New York: I know of one case of sarcoma which has gone on for three or four years after operation without signs of recurrence. The operation was performed by Dr. Bull. The man resides in Newport and is occasionally under my observation.

Dr. GLEITSMANN: I exhibited a case of primary sarcoma of the tonsil to the members of the Section in Laryngology of this Academy, showing the patient both before and after operation. The operation was performed two years ago, and thus far there has been no recurrence. He came to my clinic at the German Dispensary presenting a growth of the tonsil, which was pronounced by Dr. Heitzmann to be a sarcoma. The patient was referred to the surgeon of the German Hospital, who performed tracheotomy, cleaned out the triangular space, and excised a part of the lower maxilla and the tonsil. In addition to that he found that the larger part of the tongue was also infiltrated, and removed it almost entirely, leaving only the tip. The patient is able to make himself understood by whispering.

Dr. A. W. DE ROALDES, of New Orleans: As a newly elected member, I had not intended taking a part in the discussions of this meeting, but I feel it my duty to report in this connection a case which has occurred in my own family, and which illustrates very well a point made by Dr. Wright in regard to the difficulty of diagnosing with the microscope sarcomatous growths when they affect adenoid or lymphoid organs like the tonsil.

In my own house, some years ago, I had occasion to remove a tonsil which I considered at the time to be a fibroid tonsil and which caused a great deal of trouble. It had been treated previously by several family physicians, and for years repeatedly touched with caustics. I operated the case in my office; there was no hæmorrhage whatsoever, and I sent the lady home and gave the matter no further thought, when, an hour after, I was hurriedly summoned and found that I had to deal with one of the most frightful cases of post-operative hæmorrhage I have ever seen. The lady had taken some warm milk; this, I presume, favored the hæmorrhage by dissolving the clot. Anæmia of the brain, convulsions, and other very severe symptoms were the result of this great loss of blood. I had kept the removed tonsil, and sent a portion of it to the late Dr. H. D. Schmidt, pathologist of the Charity Hospital, who was then considered one of our best microscopists. His report came in a few days later, in which he pronounced the growth a round-cell sarcoma. This report, which took me by surprise, worried me very much, and about three weeks later I sailed for England and had the lady examined by two or three well-known men. Nothing suspicious could be found from a clinical standpoint. I then went to Paris and had the specimen carefully examined in Dr. Cornil and Dr. Ranvier's laboratory. There also it was pronounced to be a round-cell sarcoma.

The tonsil was removed six years ago; since then I have watched the case attentively, and there has been no sign of recurrence.

I to-day report this observation simply to show how difficult it is to base one's diagnosis of such cases on the microscopical examination. Supposing in my case that, influenced by the microscopical reports, I had hastened to remove the whole tonsil by a subsequent operation, I should be able to report to-day to you a case of sarcoma of the tonsil successfully operated, and in which six years after no recurrence had taken place.

In conclusion, I think we should be very prudent in such cases and not trust too implicitly the microscope when it comes to diagnosticate suspected sarcomatous growths in adenoid or lymphoid organs like the tonsils.

While I use the microscope in my own hospital—and I have made the microscopical department a feature of the institution—and while I insist that, as far as possible, no growth should be removed before hearing from our pathologist, still I have learned by experience, as some other observers have recently pointed out, that the microscope is apt to lead to some very serious errors of diagnosis in cases as above referred to.

Dr. SHURLY: I can confirm what has been said about the dangers of relying too much on the report of the pathologist. I do not know of a single case in my own practice in which a benign growth has become malignant. I can conceive, however, theoretically, of such a degeneration or evolution occurring. It is a very short step from the homogeneous to the heterogeneous formation. I believe general surgeons are almost all agreed that a benign growth of the mammary gland may become malignant. Until we learn the true pathology of these growths I do not see how the question can be settled. Very many people in this country, no doubt, live for many years with a papillomatous growth in the larynx and never come under special medical observation. I have frequently found them in persons whom I examined at my own solicitation. We do not know how often malignant growth may have been preceded by benign growths, because we have no accurate statistics on this point.

Dr. SIMPSON: The lack of a microscopic examination of the original growth in my case is possibly a weak point. My idea was to invoke a discussion on this subject. The discussion has really convinced me that my weak point is not quite as weak as at first supposed. If clinical evidence is of any value whatsoever, the original growth was undoubtedly a papilloma. I do not think we should criticise the microscopists or the microscope, and to a certain extent we must accept their statements.

One important point in connection with this subject is the matter of irritation. It is maintained by many that irritation is primarily the cause of malignant growths. When we operate on a laryngeal growth, apparently benign, it is almost impossible to avoid irritating or wounding the surrounding tissue, and this, I think, forms a focus for future degenerative changes. In the case reported by me the potent factors of irritation were the cautery and the lactic acid. You could almost see these benign growths become indurated and change their appearance.

(To be continued.)

FIRST PAN-AMERICAN MEDICAL CONGRESS.

Held in Washington on Tuesday, Wednesday, Thursday, and Friday, September 5, 6, 7, and 8, 1893.

SECTION IN GYNECOLOGY AND ABDOMINAL SURGERY.

(Concluded from page 388.)

An Inquiry into the Ætiology of Mental Disturbances following Operations upon the Pelvic Organs.—Dr. GEORGE H. ROHÉ, of Catonsville, Md., read a paper upon this subject. (See page 437.)

Dr. JOSEPH PRICE, of Philadelphia, was of the opinion that many women had insanity as a coincident and not a result of an operation upon the genital organs. He had removed patients from insane asylums several times to operate upon their pelvic organs, and in some of them the mental disorder had been relieved as a result. He believed with the author that a considerable percentage of women in insane asylums would be

cured if relieved of pelvic and abdominal disease. There was, in his opinion, a decided relation between fibroid disease of the uterus, ectopic gestation, and disturbed mental condition. Among the eighty-six women upon whom he had operated for ectopic gestation, he did not think one had been entirely sound mentally before the operation. He had also seen grave mental disorder relieved by the relief of uterine displacement. He believed that hysterectomy was sometimes followed by mental trouble, and often dreaded the operation on that account.

Dr. A. F. CURRIER, of New York, believed that all cases bearing upon this subject should be recorded. The subject was as yet too immature to draw definite conclusions. He had seen three cases bearing upon the subject—one of mania and two of melancholia. The first had followed the removal of diseased appendages, the patient becoming wildly delirious in twenty-four hours after the operation and forty-eight hours later becoming perfectly rational. He had attributed the condition partly to the shock of the operation and partly to the influence of ether. The second patient had become melancholy twenty-four hours after a Hegar operation and had sunk steadily, without fever, though taking an abundance of food, and died on the sixth day. The third patient had been operated upon for lesions of the cervix and perinæum six weeks after a very prolonged labor. The operations had been entirely successful, but melancholia had supervened about three weeks later and she was now entirely helpless.

Dr. ROHÉ insisted that a post-operation insanity was a septic insanity and this had been verified by the cases narrated. Many insane women were very anæmic; this suggested the importance of proper nourishment as a means of prevention. Unfortunately, with many women with a predisposition to insanity, this was a precaution which was out of their reach.

The Extraperitoneal Treatment of the Stump in Abdominal Surgery.—Dr. JOSEPH PRICE, of Philadelphia, defended this method of treatment after an extensive experience. Those who criticised it showed plainly that they had not the proper understanding of the method. It would be unreasonable for him to give up a method which had served him so well and adopt one which was based on theory rather than actual experience. His experience included one hundred and eleven cases. In all these cases there had been gradual strangulation and contraction of the stump, with free flow of serum for several days, with no offensive odor, and final dropping of a button of dead and desiccated tissue. Most of those who had adopted the new method had made failures with the old one. By the new method he referred to that one in which the cervix was retained in the pelvis and was covered with peritonæum. The old method took much less time than the new one, required few ligatures, and had been in successful use by some of the most skillful surgeons in the world for twenty years. If the *serre-neud* was properly applied in this method it would never slip, and the intestine would never become entangled in the stump if the operation had been properly performed. If this method was to be abandoned he would accept that of complete extirpation as a substitute, but the risks in the latter, he believed, were greater than in the method which he practiced.

Report of One Hundred Operations done for Serious Structural Disease of the Abdominal and Pelvic Organs of Women.—Dr. I. S. STONE, of Washington, D. C., read a paper with this title. (See page 468.)

Deductions from my First One Hundred and Ten Laparotomies for Appendicitis, with Report of Experimental Investigation.—Dr. J. B. MURPHY, of Chicago, read a very interesting and important paper with this title. The subject under consideration was still unsettled; there was still disagreement as to its pathology and as to the probable results of medi-

cal as opposed to surgical treatment. It was also impossible to foretell the final results in many of the cases which had been under observation. In some cases the condition was a dangerous one, in others it was not. The classification of the disease, based upon the experience which the author had had, would be as follows:

1. A simple catarrhal form.
2. A form with ulceration of the mucous membrane of the appendix, with its subdivisions.
3. An ulcerative form with infection.
4. A gangrenous form, either partial or complete as to the extent of tissue involved.
5. A gangrenous form with and without perforation.
6. A form in which infection of the peritonæum was the salient point.
7. A form in which peritonitis was most prominent.

The location of the appendix varied greatly, and this should be considered in operating. The causes of the disease were numerous. In many cases it was an infection process; there might be in addition the irritation of a foreign body; in other cases it followed pressure atrophy, with infection from fecal concretions; in other cases there was a specific infection, as from syphilis, tuberculosis, or typhoid fever. Perforation occurred in seventy per cent. of the cases. The catarrhal form was not usually serious, and generally accompanied enteritis; but if there was retention of material within the appendix, the result might be serious. Gangrene might be complete, even in the catarrhal form and without perforation. Pressure atrophy with perforation might occur, the latter being due to fecal concretions. The specific infections were ulcerative conditions similar to those which occurred in other portions of the intestines. Suppurative peritonitis might occur with ulceration alone—in other words, without perforation. If ulceration was followed by perforation the result might be fatal, as with similar lesions in other areas of the intestinal tract. Partial gangrene might occur as the result of pressure of a foreign body over a limited area, or from the pressure of contiguous fluids; complete gangrene from twists and dislocations of the appendix or its attachments. In such cases the peritonæum might be uninfected. If an abscess had formed, the danger was small before perforation had occurred; after that accident fatal peritonitis was likely to result. The abscess, at first small, might gradually increase, with adhesion to contiguous viscera, and perforation occur either into a viscus or into the peritoneal cavity. This process might be of very long duration, even many months. The speaker was confident that this disease always began in the peritoneal cavity, and, because the abscess might be adherent to the parietal peritonæum and open outwardly, the mistake was made that it had begun in the cellular tissue. The resulting peritonitis might be dry or suppurative, local or general, with or without the development of ptomaines. When perforation first took place the symptoms might not be alarming; there might even be a feeling on the part of the physician that the patient was recovering without any serious lesion. It might be from four to seven days after perforation before collapse took place. During this period ptomaines were being developed and absorbed; and after collapse death resulted in a few hours. The unvarying symptoms at the beginning of the disease were sharp pain in the right iliac region, nausea and vomiting, localized tenderness, and elevation of temperature. They might vary in intensity, but were all present in the first twenty-four hours of the disease. An operation after collapse was almost certain to be useless. Collapse was brought about and influenced by the character of the fluid in the abscess, by its quantity, and by the changes which took place in it and the infectious conditions resulting. Errors of diagnosis need seldom be made. With

the author such an error had occurred only three times in a hundred and seventeen cases. The dangers were those which were due to the disease and those which were due to the operation. The disease was fatal without operation in about twenty-seven per cent. of cases. In the author's one hundred and seventeen operations, eleven had resulted fatally. The danger from the operation itself was comparatively *nil*. The incision should be made over the cæcum, and the diseased area separated by gauze packing from the rest of the abdominal cavity. The diseased structures might be removed or not according to the urgency of the symptoms. The gauze might be retained from ten to twelve days, and the patient notified that the structure could be easily removed at a subsequent period in case of a recurrence of the trouble. Irrigation had never been practiced by the author, except in the extraperitoneal cases. The introduction of fluids into the peritoneal cavity injured the epithelium and favored septic absorption. Idiopathic peritonitis did not exist. Many cases which were called by this name were cases of appendicitis.

Appendicitis.—This was also the subject of a paper by Dr. R. T. MORRIS, of New York. The key to the understanding of this disease was the presence of a soft distensible tube of mucous membrane and its underlying adenoid tissue inclosed within a rigid muscular and serous tube. The histological and anatomical elements included in the appendix were all contributory to the inflammatory condition. The condition was a mixed bacterial infection, an infectious exudative inflammation. Bacteria having invaded the tissues might remain a long time before conditions arose which would favor their development. The forms of the disease included a simple catarrhal process, a process with destructive changes in the tissues involved, and a process with extensive necrosis of tissue and spasm of the muscle fibers. There might also be an associated phlebitis, lymphangitis, thrombosis, and peritonitis. The disease might be precipitated by violence or traumatism of different forms, or by the specific infectious element of typhoid fever, tuberculosis, *la grippe*, etc.

The epithelium of the mucous membrane of the appendix being once destroyed, infection and necrosis were always possible and imminent, though the process might take years for development. The outside of the appendix might be normal in appearance when its mucous membrane was necrosed. When the peritonæum became infected there was a process of supuration with walling off of the infectious products, then bacterial change, and finally perforation and possibly general peritonitis. The severest and most painful cases were those in which there was spasm of the muscular layer, the contents of the tube being crowded toward the tip of the organ. Either constipation or diarrhea might be present as the result of ptomaine infection. The disease starting in the appendix would involve all the structures of the contiguous bowel sooner or later. The bilious vomiting of appendicitis was due to reversed peristaltic action. Colic was the salient symptom in some cases and septicæmia in others. The indication was for an early operation in all cases on account of the infectious character of the disease. In the simplest cases an incision only an inch and a half long, following the line of the aponeurosis of the external oblique muscle, was required. The longitudinal muscular ribbon of the colon should be sought, and the appendix drawn out and ligated with catgut and removed, the mucous membrane being turned inward. In severer cases an incision three inches long was required, the patient, in such cases, being in the Trendelenburg posture. In the severest cases, with abscess and extensive induration, the incision should be four inches and a half long, and the cavity should be cleansed with saline solution and peroxide of hydrogen, and then packed with wicking or

absorbent gauze, with a large outer dressing. The prejudice which many showed on this subject was unreasonable, for a structure was concerned of no known functional importance which when once diseased would always be a source of danger.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Nineteenth Annual Meeting, held in Indianapolis on Wednesday, Thursday, and Friday, October 4, 5, and 6, 1893.

(Continued from page 481.)

SECTION IN OBSTETRICS, GYNÆCOLOGY, AND ABDOMINAL SURGERY.

Dr. ARTHUR W. JOHNSTONE, of Cincinnati, Chairman.

Ovariectomy in the Aged was the title of a paper read by Dr. RUFUS B. HALL, of Cincinnati. The author confined his remarks to patients who were seventy or more years of age. He said it was generally conceded as true that any operation upon the old did not promise such good results as the same operation would upon the young or patients in middle life. Especially was this true in reference to all abdominal operations requiring a hard strain upon the system from shock or from traumatism to vital organs during the operation, as was not infrequently the case in the removal of large ovarian tumors. He maintained that the death rate was not greater than that which usually followed the same delayed class of operations on women between forty and fifty years of age. He had done but three ovariectomies upon women above seventy years of age. In each of the first two cases the friends had hesitated to have the operation done, on account of the advanced age of the patients, and the operation had been deferred until the patient was in *extremis*.

Dr. Hall then detailed three interesting cases of ovariectomy performed on patients aged respectively seventy years, seventy years and six months, and seventy-two years. Judging from the low mortality in the cases reported and from the work of the best-known operators, the author was constrained to believe that ovariectomy in old women, if the kidneys were healthy, was as safe as in middle life.

The Value of a Close Observation of Other Men's Work.

—This paper was read by Dr. WILLIAM H. LINK, of Petersburg, Ind. He said it was the tireless energy of originality and the endless application of original methods to both the expected and the unexpected in surgery that had thus far pushed our work and its underlying science toward perfection. By close and frequent observation defects in technique and improper application of surgical measures might be noted, and, having been recognized, avoided. There was no field in which object-lesson teaching was so effective, so fruitful of valuable practical results, as that of gynæcological surgery. The observer might not always know whether the operation he witnessed carried the patient on to recovery or the contrary; but, if he was a close observer, he was improving his own surgical judgment. He was studying and rejecting or adopting methods and aphorisms as they impressed his intelligence or his reason approved. By seeing work done under varying conditions and with different results one readily came to the conclusion that a private hospital was by no means necessary to successful work; that the pure air of a country or village home or of a clean room in a private residence in a city was as good for surgical work as that of the most painted and gilded hospital, and that no one need hesitate because his patient could not have the supposed advantages of some place specially set apart for the sick.

Intestinal Obstruction following Abdominal Section.—

Dr. L. H. DUNNING, of Indianapolis, read a paper thus entitled. Of the complications following abdominal section, he said, few were more fatal than occlusion of the intestines. It might ap-

pear in a few hours after the section or not until several weeks had elapsed. The author dealt with only acute intestinal obstruction. He remembered having met with but a single case in one hundred and thirty abdominal sections, and in this case the obstruction had occurred two weeks and a half after what he had considered a very successful ovariectomy. The question of the administration of cathartics in cases of suspected or threatened occlusion of the intestines was oftentimes one most difficult to decide. Under such circumstances he was inclined to the belief that during the first week after section cathartics were indicated, and he preferred to administer grain doses of calomel every hour for a few times, then two-drachm doses of Epsom salts every two hours until an action was obtained or it was demonstrated that a harmful effect was being produced. A distinct understanding of the pathological conditions that might be present must guide the operator in his search for the cause of the occlusion, and, when found, it should be dealt with in the shortest possible time consistent with the permanent cure of the patient.

The Present Status of the Treatment of Uterine Fibroids.—This paper was contributed by Dr. O. WEEDER, of Pittsburgh, and, in the absence of the author, was read by Dr. Thomas B. Eastman, of Indianapolis.

For the sake of convenience the author divided the treatment into the symptomatic and the radical, and confined himself to those views which seemed to be generally accepted by the leading and unbiased authorities of the present day. The principal symptoms produced by uterine fibroids that required attention were hemorrhage and pain. Hemorrhage was one of the most constant and dangerous complications, and was due to a diseased and hypertrophied condition of the uterine mucosa and hyperplasia of its blood-vessels (Wyder) or to hypertrophy of the uterine muscles accompanying the growth of the myoma with a simultaneous hyperplasia of the blood-vessels. The operations practiced for the radical cure of myomatous growths were vaginal enucleation, removal of the appendages, enucleation by laparotomy, and suprapubic hysterectomy. The author then considered these operations at length.

The Erect Posture for Gynæcological Examinations.—

This paper was contributed by Dr. WILLIAM B. DEWEES, of Salina, Kansas, but was read by John C. Sexton, of Rushville, Ind. Digital examination *per vaginam* with the patient in the erect posture afforded one of the most positive means of diagnosis in gynæcology. It was a well-established fact that respiration and the various movements and attitudes of the body, as well as pathological conditions, changed the conditions and environments of the viscera. Thus the importance of posturing the patient in making physical examinations in gynæcological practice became evident, as most of the symptoms of diseases of the intrapelvic organs were more marked, and very many only manifested, when the patient was standing; while certain conditions of descent, prolapse, or displacement might entirely disappear or change when the pressure or the superincumbent weight of the abdominal viscera was removed by the patient being placed in the dorsal, semiprone, genupectoral, or high pelvic posture. Therefore the erect posture was of paramount importance as an aid in diagnosis in this field of labor. The author emphasized the advantage and necessity of digital examination in the erect posture, more particularly in displacements of the uterus, vesical and rectal disorders, lack of perineal and vaginal support, ovarian and tubal disorders, abdominal and pelvic tumors, and abdominal tumors and pregnancy.

Tuberculosis of the Peritonæum, with Report of Cases.

—Dr. H. O. PANTZER, of Indianapolis, read a paper thus entitled. The author said that the prognosis and treatment of peri-

toneal tuberculosis had changed within the last decade. The accidental discovery of its curability by laparotomy had shifted its clinical relations. The author then quoted the conclusions of Dr. J. Whitridge Williams, from the *Johns Hopkins Hospital Reports*, 1892, on tuberculosis of the female generative organs. He reported a case of primary genital tuberculosis giving rise to a tubercular peritonitis and to tubercular disease of the abdominal parietes. Case II was one of primary genital tuberculosis following a puerperal sacculated ascites resembling an ovarian tumor. Laparotomy was performed and the patient recovered. Case III was one of genital tuberculosis complicated with suppurative infection and pelvic peritonitis. Laparotomy was done, and was followed by recovery of the patient.

This disease, from being regarded as a fatal and most intractable affection, belonging to the domain of internal medicine, had, since its accession to the realm of surgery, come to be regarded as quite submissive. A mistaken diagnosis had repeatedly led to the opening of the abdominal cavity. Instead of an ovarian tumor, an enlarged gall-bladder, a nephrosis, or some other legitimate object of surgical interest being found, tubercular disease of the peritonæum in some of its multiple forms presented itself. The abdomen was closed without any attempt at treatment, or at most the ascitic fluid was evacuated. It was noted that these cases did better afterward, and that some of the patients fully recovered. In 1884 Koenig had advocated laparotomy as a curative measure for peritoneal tuberculosis, and the operation had been done by other surgeons since.

The Treatment of Diseases of the Uterine Appendages.

—Dr. WILLIAM H. HUMISTON, of Cleveland, read a paper on this subject, in which he said the frequency and importance of diseases of the appendages were recognized by all practitioners of medicine. The early recognition of these diseases was of unusual importance, as by instituting proper treatment at once we could save a large percentage of the patients from a major operation and a prolonged convalescence. Simple inflammatory conditions of the tubes and ovaries, before extensive adhesions had taken place, could be treated successfully by rest, boroglyceride and iodine tampons, long-continued hot-water douches, and thorough curettement of the uterus, followed by a course of galvanism. He had cured a few cases where the ovaries were prolapsed and somewhat adherent by adding massage to the above-mentioned treatment. But, as a rule, if the case had been neglected until pelvic peritonitis had occurred, with its tendency to adhesions and recurrence, we should save many years of suffering, if not life itself, by advising removal of the appendages after a sufficient trial had been given to conservative treatment.

Frequently in the puerperal state there was a pelvic peritonitis without the tubes being affected, the inflammation spreading directly through the uterus; there was an exudate formed which rest and proper treatment would cause to be absorbed and leave the appendages healthy, so that afterward pregnancy might take place and the patient go on to full term. In these cases, if suppuration occurred, laparotomy should be advised. In tubercular salpingitis the question of removal would depend wholly upon the amount of general systemic infection. The author believed that nearly all suppurative diseases of the tubes and ovaries were due to gonorrhœa. It was his experience that had led him to this belief.

He closed with a few words on the value of electricity in the treatment of inflammations of the uterus and its appendages. He valued this very highly, and in the catarrhal forms of endometritis in young girls and primiparæ we could obtain a cure if sufficient time was given. He applied the positive pole within the uterus, and the negative, in the form of a broad electrode, over the whole abdominal region, using a current

strength of from twenty to fifty milliamperes for five minutes every third day. It required from fifteen to twenty applications to complete a cure.

(To be concluded.)

Book Notices.

Manuel du médecin praticien. La pratique dermatologique et syphiligraphique des hôpitaux de Paris. Aide-mémoire et formulaire. Par le Professeur PAUL LEFERT. Paris: J. B. Baillière et fils. 1893. Pp. vi-7 to 288.

This little book is a compilation of the modern methods of treatment of skin diseases by the dermatological specialists of the principal hospitals of Paris. Often under the title of a disease there is a description of the methods of treatment followed by several specialists. The list of diseases seems to be extensive and the formulæ sufficiently numerous to make the volume very useful to the physician.

Ein dermatologisches System auf pathologisch-anatomischer (Hebra'scher) Basis. Von Dr. S. JESSENER, Königsberg i. Pr. Hamburg und Leipsic: Leopold Voss, 1893. Pp. 66.

In this opusculum the author discusses the fundamental principles of a classification of skin diseases, presents a synopsis of the classifications of Tommasoli, Auspitz, and Hebra, and finally gives his own classification. In the latter he has six classes: First, functional anomalies; second, circulatory anomalies; third, inflammatory processes; fourth, hypertrophies; fifth, neoplasms; sixth, retrogressive nutritional disturbances. The ideal system of classification does not seem to us to have been discovered as yet.

BOOKS, ETC., RECEIVED.

Mirror Surgery and Bandaging, including the Treatment of Fractures and Dislocations, Tracheotomy, Intubation of the Larynx, Ligation of Arteries, and Amputations. By Henry R. Wharton, M.D., Demonstrator of Surgery and Lecturer on Surgical Diseases of Children in the University of Pennsylvania, etc. Second Edition, thoroughly revised and enlarged, with Four Hundred and Sixteen Illustrations. Philadelphia: Lea Brothers & Co., 1893. Pp. viii-13 to 529. [Price, \$8.]

Clinical Gynecology: being a Handbook of Diseases peculiar to Women. By Thomas Madden Moore, M.D., F.R.C.S. Ed., Obstetric Physician and Gynecologist, Mater Misericordiæ Hospital, Dublin, etc. With Two Hundred and Fifty-nine Illustrations. Philadelphia: J. B. Lippincott Company, 1893. Pp. xvi-11 to 562. [Price, \$4.]

Lectures and Essays on Fevers and Diphtheria, 1849 to 1879. By Sir William Jenner, Bart., G.C.B., M.D. Lond., and F.R.C.P. Oxon., LL.D. Cantab. and Edin., etc. New York: Macmillan & Co., 1893. Pp. xii-3 to 581. [Price \$4.]

Essentials of Minor Surgery, Bandaging, and Venereal Diseases. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine. By Edward Martin, A.M., M.D., Clinical Professor of Genito-urinary Diseases in the University of Pennsylvania, etc. Second Edition, revised and enlarged. Seventy-eight Illustrations. Philadelphia: W. B. Saunders, 1893. [Price, \$1.] [Saunders's Question Compend, No. 12.]

Essentials of Bacteriology: being a Concise and Systematic Introduction to the Study of Micro-organisms for the Use of Students and Practitioners. By M. V. Ball, M.D., Physician

to the Eastern State Penitentiary at Philadelphia. Second Edition. With Eighty-one Illustrations, some in Colors, and Five Plates. Philadelphia: W. B. Saunders, 1893. [Price, \$1.] [*Saunders's Question Compend.*]

A Handbook of Ophthalmic Science and Practice. By Henry E. Juler, F. R. C. S., Ophthalmic Surgeon to St. Mary's Hospital; Surgeon to the Royal Westminster Ophthalmic Hospital, etc. With Illustrations. Second Edition. Philadelphia: Lea Brothers & Co., 1893. Pp. xvi-549.

Index-Catalogue of the Library of the Surgeon General's Office, United States Army. Authors and Subjects. Vol. XIV. Sutures—Universally. Washington: Government Printing Office, 1893. Pp. 14-1016.

Transactions of the Medical Association of Georgia. Forty-fourth Annual Session. 1893.

Medicación y Medicamentos Cardio-Motores. Por D. Antonio Espina y Capo, Médico, por oposición, del Hospital Provincial de Madrid. Segunda Edición, corregida y considerablemente aumentada. Madrid: Administración de la Revista de Medicina y Cirugía Prácticas, 1893. Pp. vi-7 to 334. [*Biblioteca Científica Moderna.*]

The Treatment of Pneumonia in St. Francis Hospital, with Results in Two Hundred and Twenty-eight Cases. By Arnot Spence, M. D., New York. [Reprinted from the *Medical Record.*]

Essential Details in the Conduct of Labor. By Kate Reynolds Lobingier, A. B., M. D., Denver, Col. (Read before the Colorado State Medical Society, 1893.)

Appendicitis. Clinical Lecture at the New York Post-graduate Medical School, February 11, 1893. By R. T. Morris, A. M., M. D., New York.

Hysterectomy by a New Method, which is Simple, Safe, Bloodless, and entirely obviates the Necessity of either Clamp, Cantery, or Ligature; a Major Operation converted into a Minor one by a Simple Process of Easy Dissection. By E. H. Pratt, M. D., LL. D., Chicago. [Reprinted from the *Journal of Official Surgery.*]

Continuation of Report on Hysterectomies. Nine more Cases of Hysterectomy performed by the New Method. By E. H. Pratt, M. D. [Reprinted from the *Journal of Official Surgery.*]

Results in Ninety Cases of Pulmonary Tuberculosis, treated at the Winyam Sanitarium at Asheville, N. C., from May 1, 1891, to May 1, 1892. With a Comparison of Results obtained with and without the Use of Tuberculin. By Karl von Ruck, M. D., Asheville, N. C. [Reprinted from the *Medical News.*]

Infectious Appendicitis. By Robert T. Morris, M. D., of New York.

Miscellany.

Some Therapeutic Problems awaiting Solution.—In an editorial article thus entitled the *Lancet* says:

Complaints are frequently made regarding the backwardness and slow progress of therapeutics. In view of the complexity of the phenomena which are involved, the wide range of individual idiosyncrasy, and the impossibility in many cases of instituting anything in the nature of exact experiment, it is possible that these complaints may be a little unreasonable. No one doubts that rapid and brilliant progress is continually being made in our knowledge of the pathology and the clinical history of disease, and when the conditions of the question are fairly considered it will not seem surprising that therapeutic progress

should follow rather than precede advances in pathology and clinical medicine. However this may be, it is desirable that we should from time to time review our position regarding some of the as yet unsolved or imperfectly solved problems of medicine. Time leaves little unchanged, and even in the absence of any notable experiments or discoveries it will always be found that we are from year to year insensibly altering our attitude toward the great therapeutic controversies of our age. Experience always teaches something, even if it be only caution and skepticism, and every day facts arise which tend either to confirm or to undermine provisional theories and working hypotheses. Truth prevails very slowly and error is as slowly expelled; but the intellectual atmosphere is ever changing. Doctrines that seemed to be probable a decade ago appear to be hardly worth contending against to-day. Theories that gave a passing satisfaction to the thoughtful physician of the last generation seem to be strangely outworn to-day, although little may have been accomplished in the way of tangible disproof.

We may find illustrations of our remarks in such diseases as syphilis, phthisis, pneumonia, diphtheria, and typhoid fever. It is not so long since the revolt against the abuse of mercury was in full swing and had gone so far that certain accomplished observers maintained that some of the worst features generally attributed to the disease were really due to the remedy. Now we feel that this question has passed out of the sphere of serious discussion. With a practical unanimity we acknowledge the value of mercury, and the only problems that await solution in this connection are the proper form of the drug to employ in a given case, the correct dosage, and the mode of administration. Phthisis affords a more difficult case. For the present, treatment by inoculation stands condemned, and it is not likely to be generally revived unless more extensive and authentic evidence of its utility than that which first gave it vogue is forthcoming. We have not, however, yet finally determined whether the antiseptic treatment of phthisis is as sound in practice as it seems to be plausible in theory. The use of antiseptic inhalations, though much less general than it was a few years ago, still holds its ground to some extent. We would commend to the profession the determination of the following question, which lies at the root of the problem: Supposing it be granted that bacilli are the cause of phthisis and that their destruction is the legitimate object of the efforts of the physician, is there any evidence to show that an antiseptic solution or vapor can reach the seat of the disease in sufficient strength to effect this object? We fear that, for the present at least, there is no such evidence; and without discouraging further experiment we very decidedly deprecate the use of inhalers and inhalations which are theoretically indefensible and manifestly ineffective. Then, again, with reference to the same disease, much advantage would arise from the diffusion of more definite views regarding the different effects of the various sanatoria upon its progress and palliation or cure. The high altitudes, the ocean voyage, and the desert air are all known to possess considerable efficacy, but although the literature of the subject is rapidly increasing, it can not be said that the profession generally has assimilated the opinions of experts on these subjects.

Pneumonia is still more or less of an opprobrium to the therapist. Vigorous stimulation still commands the approval of the great majority of adherents, but thoughtful physicians can hardly repress a doubt as to whether it is universally applicable and whether a place might not still be left for venesection and antimony. Sweeping generalizations in medicine are hardly ever true, and the time may come when greater therapeutic distinctions will be drawn between the different types of case, to the great advantage of the patients. Then

we need further to make up our minds whether cardiac failure is really the chief source of danger in pneumonia, and, if it be so, whether we have made sufficient use of our great cardiac tonic, digitalis.

It is not so long since one of the great battle grounds of practical medicine was the identity or non-identity of laryngeal diphtheria and membranous croup. This question has never been authoritatively settled, and although the doctrine of identity has tended to prevail, somehow or other the question has lost its interest, and we have come to see that its practical importance had been overrated. What is certain is the clinical fact that a membranous affection of the pharynx is only moderately perilous, while a membranous affection of the larynx is excessively dangerous, and in young children is very frequently fatal. In view of these clinical facts, the question of the precise pathological character of the membrane in the different cases becomes of minor interest. More important are the questions whether the removal or destruction of the membrane is ever advisable and when tracheotomy should be performed. The former question is now usually answered in the negative; and the latter raises one of the most difficult points in therapeutics, and one which is further rendered perplexing by the fact that foreign experience seems to be at variance with our own.

As regards the last disease on our list—viz., typhoid fever—we greatly need more authoritative teaching and more defined views on two questions: Firstly, Is intestinal antiseptics the legitimate aim of treatment, and, if so, which of the numerous antiseptics is the most suitable one? and, secondly, Is antipyresis generally advisable, and, if so, are we to trust to medicinal antipyretics or to the cold bath? To discuss these questions adequately would take us beyond our present limits, but we commend them to the thoughtful attention of our readers. We may merely suggest that intestinal antiseptics is still upon its trial, and that as regards antipyresis British practitioners have perhaps unduly neglected the external application of cold.

The Philadelphia Polyclinic.—It is announced that for the week beginning October 30th the subject of cataract will be considered with reference to its etiology, early recognition and management, prognosis, determination of maturity, operations for its removal, after-treatment, and adjustment of lenses. Traumatic, secondary, and juvenile cataracts will receive special consideration. Operations will be done and clinical studies will be carried on in the wards, operating rooms, and clinics of the Polyclinic, Wills Eye Hospital, and other hospitals with which the members of the teaching staff are connected. These hospitals in the aggregate contain upward of one hundred beds devoted to eye patients and have a dispensary service of twenty thousand new cases of diseases of the eye annually. Opportunity will be given members of the class to perform, under the supervision of the professors, the various cataract operations on the eyes of lower animals. There will be lectures and illustrated demonstrations of important points, and a series of conferences, conducted by the professors and participated in by the class, to consider questions now being discussed by the profession. The fee for the course will be fifteen dollars, and to students already taking the regular course on diseases of the eye, five dollars. Conferences will be held and, when not otherwise stated, clinics and demonstrations will be given, at the Polyclinic Hospital, Lombard Street, between Eighteenth and Nineteenth Streets. Monday, October 30th.—9 A. M.: Clinical Demonstrations, Dr. Thorington. 10 A. M.: The History of Cataract Operations, Dr. Schneideman. 2 P. M.: Clinic at Wills Eye Hospital, Dr. Risley. 4 P. M.: Clinic and Lecture, Dr. Jackson. 8 P. M.: Demonstrations of the Histology and

Pathology of Cataract, and Conference upon Cataract in Young Persons, conducted by the professors. Tuesday, October 31st.

—9 A. M.: Clinical Demonstrations, Dr. Carpenter. 11 A. M.: Clinical Demonstrations at the Children's Hospital, Dr. Thomson. 2 P. M.: Clinic at Wills Eye Hospital, Dr. Jackson. Clinic at Presbyterian Hospital, Dr. Phillips. 4 P. M.: Antiseptics in Cataract Operations, Dr. de Schweinitz. 8 P. M.: Cataract Operations on the Eyes of the Lower Animals, under the supervision of the professors. Wednesday, November 1st.—9 A. M.: The Diagnosis of Cataract, Dr. Jackson. 10 A. M. to 1 P. M.: Medical and Surgical Clinics at the principal Philadelphia Hospitals. 2 P. M.: Clinics at Wills Eye Hospital, Dr. Harlan and Dr. Risley. 4 P. M.: Clinic at the Philadelphia Hospital, Dr. de Schweinitz. Clinic at the Polyclinic Hospital, Dr. Schneideman. 8 P. M.: Conference on the Technique of Cataract Operations. Thursday, November 2d.—9 A. M.: Clinical Demonstrations, Dr. Carpenter. 10 A. M.: The Adjustment of Spectacles after Cataract Extraction, Dr. Phillips. 2 P. M.: Clinic at Wills Eye Hospital, Dr. Jackson. 4 P. M.: The Etiology and Early Management of Cataract, Dr. Risley. 8 P. M.: Conference on the Treatment of Immature Cataract, and when to Operate for Cataract. Friday, November 3d.—9 A. M.: Refraction after Cataract Operations and the Ophthalmometer, Dr. Jackson. 11 A. M.: Clinical Demonstrations at the Children's Hospital, Dr. Thomson. 1 P. M.: Clinical Lecture at Jefferson College Hospital, Dr. de Schweinitz. 2 P. M.: Clinic at Wills Eye Hospital, Dr. Risley. 4 P. M.: Causes of Failure of Cataract Operations, Dr. Hansell. 8 P. M.: Conference on Complications and Secondary Cataract. Saturday, November 4th.—9 A. M.: Clinical Demonstrations, Dr. Carpenter. 10 A. M. to 1 P. M.: Medical and Surgical Clinics. 2 P. M.: Clinic at Wills Eye Hospital, Dr. Jackson. 4 P. M.: Clinic at the Philadelphia Hospital, Dr. de Schweinitz. At the Polyclinic, Dr. Phillips.

Large Doses of Strychnine in the Treatment of Pulmonary and Cardiac Diseases.

—This was the title of a paper read by Dr. Thomas J. Mays, professor of diseases of the chest in the Philadelphia Polyclinic and visiting physician to the Rush Hospital for Consumption, before the Philadelphia County Medical Society, on September 27th. The paper was as follows:

From quite an extended experience with the use of strychnine I feel convinced that this drug gives better practical results in the treatment of pulmonary and cardiac diseases than any other single remedy at our command, and it occurred to me that a short discussion of the principles which I have followed in its administration might be of interest to the members of this society.

It is needless to tell you that strychnine has a more powerful stimulating influence over the nervous system than any other drug in the materia medica, and that, besides its general action, it has a special influence on the nerve supply of the lungs, heart, stomach, intestines, etc. Now, without going into details, it is my belief that many affections of the lungs and heart are fundamentally dependent on disorder of the nerves which supply these organs, and that the curative effects of this agent in these diseases rest largely on the power which it has in correcting this primary aberration. Over and above this it has been recently shown that strychnine also has the faculty of multiplying the corpuscular elements of the blood, and is therefore, like iron, a blood-builder. A combination of such valuable properties in a single agent makes it apparent, on theoretic grounds alone, why strychnine should possess such a beneficial therapeutic effect in the diseases which we are here considering, since anæmia is one of their most common compli-

cations. In spite of these desirable qualities, I believe that we often fail in obtaining its best effects by giving it in doses which are entirely too diminutive. I do not mean to say that strychnine should be given in large doses in every disease to which it is applicable, for such a statement might lead to great harm if it were practically carried to its legitimate end, but these remarks pertain only to those diseases to which reference is made in this paper. The custom of giving strychnine in doses of a sixtieth or a fiftieth of a grain I have discarded long ago, for I feel satisfied that such amounts are comparatively worthless. It is very rare that I begin with a smaller dose than a thirty-second of a grain, and more often with a thirtieth of a grain, and then gradually increase in an ascending scale until I touch the limit of toleration. Strychnine is peculiar in this respect. The length of the ascending scale from the effects of such a dose to a point where the physiological action of the drug begins to develop itself is usually very long, and during the time that this is traversed by the therapist a free opportunity is given in which to obtain the full stimulant action of the drug in gradually increased doses. I usually incorporate a grain of strychnine with phenacetin, quinine, etc., and divide the whole into thirty-two capsules, and give one capsule four times a day. This lasts eight days, and then an eighth of a grain more of strychnine is added to the whole quantity, which is thereafter increased a fourth of a grain every eighth day until the limit of toleration is approached. This varies very much in different individuals. I have a number of patients under my care at the present time who are taking a tenth of a grain, four who are taking a seventh of a grain, and one who is taking a sixth of a grain four times a day. Most of these patients have been taking the drug from three to seven months continuously. I have seen patients, however, who could not endure more than a twentieth of a grain four times a day. So soon as the patient begins to show evidence of intoxication the dose is reduced to a point where this is no longer manifested, and then maintained there permanently or again increased after some time. It is possible, however, and this should always be borne in mind, that the dose which was toxic once may in time be taken with impunity. This would seem to show that the poison line of strychnine recedes, and that the drug establishes a certain degree of tolerance for itself. Yet I have met with one case where the administration of the drug was broken off for almost two weeks, and then, on resuming the same dose which was previously taken, marked rigidity of the lower limbs followed after the first two doses.

What, if any, are the untoward effects of strychnine when given in such large doses? So far as I know, there are none except its occasional tendency to produce diarrhœa; but at the very worst I do not believe this proneness is very pronounced. In my earlier acquaintance with it I fancied that it aggravated the diarrhœa which is such a frequent accompaniment of phthisis, but my later experience fails to confirm this, since I have seen cases of intestinal tuberculosis get well when strychnine was given in combination with morphine and oxide of zinc. It has been asserted that it causes albuminuria by reason of the high blood tension which it brings about. Of this I have not observed the least evidence, having frequently examined the urine of patients to whom strychnine had been administered in such large doses for more than a year.

I will now briefly consider in greater detail the mode of giving strychnine in each disease to which it is believed to be applicable. In *asthma* I usually begin by introducing about a twentieth of a grain under the skin, and administer about a thirtieth or a twenty-fifth of a grain by the mouth four times a day, and gradually increase this in the way above indicated. Hypo-

dermically it is given once a day or every other day, and, if possible, in the evening, until there is an approach to the production of the toxic effects of the drug. Suitable doses of phenacetin, quinine, capsicum, and ammonium muriate will enhance its action. So far as my experience goes, strychnine must be regarded as the most powerful adjuvant in the treatment of asthma, although we must never lose sight of the importance of treating the diathesis or exciting cause on which the disease often rests, and also of improving the general nutrition.

Bronchitis, whether acute or chronic, is very much benefited by strychnine. It checks the cough, diminishes the expectoration, improves the appetite, and puts to one side the whole constitutional relaxation and feebleness frequently present, especially in the chronic form of this disease. It must be given in ascending doses, and may be combined with benefit with the syrup of the hypophosphites or hydriodic acid, or with both.

Strychnine is one of the most useful agents in treating acute pneumonia, whether this is of the croupous or catarrhal variety. I usually begin by injecting a twentieth of a grain, and if the case is severe I keep this up morning and evening, together with the internal administration of a twentieth of a grain every three or four hours until symptoms of intoxication begin to show themselves. This I have seen to take place on the second and third day of the disease. If the case is a mild one it will suffice to give a twentieth of a grain every four hours.

I know of no disease which is more eminently benefited by strychnine than pulmonary consumption. Indeed, as a rule, it seems that sufferers from this disease are capable of taking this drug in extraordinary large doses. I have a number of phthisical people under my care at the present time, both in hospital and in private practice, who are taking over half a grain of it a day—a dose which had been reached by a gradual increase of a smaller one. For a more complete description of the use of strychnine in primary pulmonary diseases I would refer you to a paper of mine on this subject, contained in the *Medical News* of July 22, 1893, and the remainder of this paper will be devoted to a consideration of the application of this drug to cardiac and cardio-pulmonic diseases.

In recommending strychnine as one of our most valuable cardiac stimulants a fear may spring up in the minds of many that this drug is put forward for the purpose of displacing digitalis—the old and well-tried heart tonic. That such a suspicion is not altogether groundless when held by those who prescribe digitalis for almost every phase and form of heart disease they meet is true; but he who looks the question of cardiac therapeutics squarely in the face, feels, although more perhaps from an instinctive than from a scientific standpoint, that the action of digitalis is not interchangeable with that of strychnine, and that each fulfills its own peculiar indication in the treatment of diseases of the heart. Although we may not be able to draw a rigid line of demarcation between the behavior of these two agents, we have experimental evidence to show that digitalis acts more on the muscular and less on the nervous structure of the heart than strychnine. My own experiments demonstrate that digitalis enhances or increases the irritability of the heart muscle, while strychnine depresses or reduces it; and that the former arrests the heart in systole while the latter arrests it in diastole. It is my belief that the action of these drugs is as dissimilar clinically as it has been shown to be physiologically, and that strychnine is principally indicated in those diseases of the heart which are dependent on a disturbance of innervation, as, for example, in simple cardiac weakness and in irregularity and intermittency of its pulsations, while digitalis is preferable in cases where there is a want of compensatory power in the heart muscle, as in valvular incompetency.

Bearing in mind this difference, strychnine should be prescribed when the nerve supply of the heart is enfeebled through auto-intoxication such as is found in the post-paralysis of diphtheria, scarlatina, measles, small-pox, influenza, whooping-cough, and in poisoning from alcohol, lead, mercury, etc.

Irregularity and intermittency of the heart's action are frequently benefited by the administration of large doses of strychnine, and more often than not do we find that digitalis is utterly useless in such cases. Sometimes the irregularity will remain even under the influence of strychnine, but the symptoms which are dependent on or are a part of this condition—such as pain in the precordium, orthopnoea, oppression of the chest—will improve or disappear, especially if suitable evacuant remedies are used at the same time. This whole disorder I regard as being probably due to a want of power in the discharge of nerve force of the heart, or rather, perhaps, to a lack of nerve control over the discharge of the muscle force of the heart. This weakness of nerve power is not only marked in the heart, but it is also apparent in the lungs and frequently manifests itself, especially in elderly people, in a coexistent œdema of the bases of both lungs.

Moreover, there is often found an irregularity or intermittency of the heart's action in severe seizures of asthma, and I know of nothing which will remove this accompaniment, as well as the original disease, as strychnine in large doses promptly administered, both hypodermically and by the mouth.

Angina pectoris is another paroxysmal disease in the treatment of which strychnine in large doses stands pre-eminent.

Again, digitalis is always regarded as the sovereign remedy in the treatment of valvular diseases of the heart and their sequences, but there comes a period in the life history of every such affection in which digitalis, no matter how much benefit was derived from it before, proves utterly useless. This leads, of course, to disappointment, and often gives rise to serious suspicion concerning the utility of this important agent. The fault lies, however, not in the drug, but in its improper application. It has done all that could be reasonably expected of it. It stimulated the heart muscle to renewed activity after the valvular rupture occurred. It aided in developing its muscular fibers and restored its former power; but now, for some reason or other, the nervous energy of the patient begins to flag, and the heart walls commence to relax in spite of the muscular hypertrophy which is present, and digitalis no longer possesses the spurring properties which it once had. The blood dams up in the left ventricle and auricle, the pulmonary circulation becomes impaired, œdema and congestion of the lungs follow, and death is threatened by way of the pulmonary organs. It is at such a time, when digitalis fails to counteract these many incidental complications, that strychnine steps in and shows its superior value as a tonic to the waning nerve energy of the heart and lungs.

In the discussion, Dr. Lawrence F. Flick said: This is too practical a subject to be permitted to pass without some discussion. There is no drug that has become more popular in recent years than has strychnine just in the class of cases to which Dr. Mays alludes. While we have apparently empirically come to the conclusion that this drug is of very great value in these diseases, I do not know that I have seen a satisfactory explanation of why it is so. There is one peculiar result in the use of strychnine which gives somewhat of a clue to its manner of action. This was not mentioned by Dr. Mays. It is the marked increase of weight that occurs under the use of large doses of strychnine. I do not know of any other drug which will produce this effect so rapidly and so satisfactorily. It seems to me to indicate that the real cause of benefit, after all, is possibly the increase of nutrition, and yet why this increase

in nutrition from the use of strychnine? It is probable that its effect in stimulating involuntary muscles has a great deal to do with the result. The special action of strychnine is stimulation of involuntary muscles. This is true not only of the muscles of the heart and of the blood-vessels, but also of the muscles of the stomach, intestines, etc.

In the treatment of tuberculosis strychnine is certainly one of the most valuable remedies that we possess. It should be used in large doses. It along with many other remedies which go to build up the nervous system and improve the nutrition are really essential in the treatment of tuberculosis. When we use remedies which build up the nervous system, and with them use the germicides that have lately been introduced, we can obtain very gratifying results in the treatment of this disease which has hitherto been so discouraging. The use of strychnine and other stimulating drugs should be accompanied by the employment of such germicides as have shown themselves to be of value. I have seen recently reports of some excellent results with tuberculin and tuberculinidin, and if these reports continue to come as they have, I feel that we can soon approach the treatment of tuberculosis with a great deal more courage than in the past.

Dr. Charles Wirgman said: I can give my testimony as to the value of strychnine in asthma. I have a patient suffering with severe asthma, the result of hay fever, taking one twelfth of a grain four times a day. He is a man of relaxed muscular fiber and rather feeble constitution. He has had these attacks every autumn for some years. I began with one sixtieth of a grain, and increased to one fortieth and then to one thirtieth. Observing no toxic symptoms, I increased the dose to one twentieth, and finally to one twelfth, four times a day, I think with decided benefit to the general nervous tone. I have never observed in this case or in others any accumulative effect of the drug. As far as its influence upon the pulmonary tract is concerned, I have observed no positive action—that is, in the sense of an expectorant—but it certainly does increase the general tone so that a patient has more strength to expel the secretion which accumulates. The only symptom that might indicate a toxic action has been a slight amount of spinal irritation, but I have been inclined to attribute this to the semi-recumbent position which he has been compelled to maintain.

Dr. S. Solis-Cohen said: There is no question in my mind that large doses of strychnine can in certain cases be well borne for prolonged periods. In hysterical and other forms of aphonia, and in paralysis following diphtheria, I have frequently given as much as a fifth of a grain three times a day for several days in succession, having reached this dose by gradual increment; and I have now under my care a man who has been taking a tenth of a grain of strychnine three times a day for some two years, and who has at times for short periods taken even larger doses. This is a case of syringomyelia with cardiac feebleness. But while I am sure, from what Dr. Mays and others have reported, and from my own observations extending over many years, that these doses of strychnine can be well borne and are useful in certain selected cases, I am not one of those who believe that these large doses should be given to every case or to a large number of cases. Both in acute cases and when the drug is to be long continued, I have seen, as a rule, better results from what nowadays would be considered very small doses—namely, about one sixty-fourth of a grain or one milligramme. The reason for that, I think, is quite clear. In some very interesting researches communicated by Mr. Hodges to the American Physiological Association at the last meeting of the Congress of Physicians and Surgeons at Washington, and in which the effects of exercise and rest upon the ganglion cells of the brains of bees and of sparrows were

demonstrated, it was shown that during the periods of activity a certain vacuolation of the gray matter of the nerve cells was produced; an absolute destruction of tissue during the physiological process of nervous function. During the period of rest, repair takes place. Strychnine is an agent which above all others stimulates nervous function, and naturally in the process of stimulation of nervous function leads to destruction of nerve tissue. This is, of course, the absolute physical necessity; energy can only be produced, whether in the body or out of it, by an arrangement of matter—a reduction of existing forms into less complex forms, with liberation of the energy locked up in the complexity of structure. Mr. Hodges also showed some spinal cells from a cat poisoned with strychnine, and called attention to the correspondence between the vacuolation in the spinal cells of the cat from strychnine activity and the vacuolation in the brain cells of bees and sparrows from normal activity; there is no doubt in my mind that the correspondence holds throughout. Strychnine adds nothing to the stores of energy of the patient. Its great usefulness in apparently giving strength to a weak man is due to the fact that it calls upon him for the exercise to the full of such reserve energy as he possesses. It stimulates the nerve cells to their highest activity, quickly liberating the locked-up energy, and in so stimulating it inevitably uses up a certain amount of nerve tissue. If, after this, sufficient rest is allowed, repair takes place, and takes place more quickly because the nutritive processes have been stimulated by the action of the drug. Now, if the amount of activity with concomitant reduction of nerve tissue caused by strychnine can be proportioned to the needs of the patient so nicely that we shall get the maximum of stimulation of the nutritional processes and the minimum of expenditure of the patient's nerve tissue, it is evident that this is the proper point at which to stop. Pushing it beyond that, we cause an unnecessary expenditure of energy and loss of tissue which has to be made up from the food and in other ways. The nicety of adjustment most beneficial is not to be expressed in figures; it differs with the patient and with the disease, and to reach it requires careful observation and good judgment. Still it is something that we should aim at and that every intelligent physician should be able to secure. The fact that we do not kill a patient by large doses of strychnine does not necessarily prove that we have done him good. The fact that a patient is not killed by a surgical operation does not prove that the operation was indicated in that particular case. It may have been or it may not. Dr. Mays has alluded to the tolerance finally produced to large doses of strychnine. In this lies, I think, the patient's safety. The nerve cells become habituated to it, and refuse to respond up to a certain point. It is the small excess beyond this point that is over the amount tolerated to which the therapeutic effect is due.

In the treatment of acute pneumonia, strychnine is unquestionably one of the best agents that we possess, given in proper doses. I have had occasion to observe at the Philadelphia Hospital, in patients side by side, the comparative effect of small and large doses, and while admitting all the difficulties in the way of drawing conclusions from such comparisons, I am sure that the patients with small doses did at least as well as those who received large doses. I am not afraid to push strychnine up to half a grain, if necessary, and when the indication for such dosage exists. In Dr. Mays's cases I have no doubt that large doses were indicated, but in less skillful hands than Dr. Mays I am sure the routine use of large doses might do harm, not by producing immediate death, but by gradually exhausting the nervous energy of the patient.

In acute cases the best method of administration of strychnine is by means of dosimetric granules. I use the word "dosi-

metric," not that there is anything magical in the term, but that it indicates the manner in which the granules are prepared. Strychnine arseniate in doses of half a milligramme ($\frac{1}{100}$ grain) can be given and repeated every fifteen minutes or half an hour until the desired physiological or therapeutic effect is produced. The administration can then be stopped, and, as the effect is often prolonged, need not be repeated until the next day. In some cases the nurse can be instructed to administer three or four granules—one granule at a time—at intervals of half an hour, and then none for three or four hours. Sometimes, after a patient has thus been given four granules ($\frac{2}{5}$ grain), the effect can then be kept up by a single granule twice or three times a day. As I have elsewhere published my views concerning the important place of strychnine in the treatment of affections of the heart, I will not now dilate further upon it.

To repeat what I more particularly desire to contribute to the present discussion, I believe that while strychnine is very useful in all the conditions described by Dr. Mays, the best effect can be obtained by limiting the dose to the smallest quantity that will produce the physiological reaction intended.

Dr. Mays said: I do not know that I have much to say in conclusion. The remarks made by Dr. Flick with reference to the influence of strychnine on nutrition are very apropos. The reason that I did not allude to this was because I have discussed this part of the subject in the paper to which I referred. It is quite evident to my mind that Dr. Flick has had a plentiful experience with the use of large doses of strychnine, because, among other things, he notes the influence of this drug upon nutrition. This action is certainly remarkable. I have so often observed this gain in weight that it is a common thing for me to expect the patient to gain in weight if he gets strychnine in ordinarily large doses, such as I have spoken of. I do not know whether Dr. Flick is correct in saying that it acts upon the involuntary muscles of the body, or whether it acts upon the trophic nerves. However, there is strong evidence for believing that strychnine affects the trophic or nutritive nerves of the body and stimulates them, and in this way improves nutrition. I have seen remarkable gain in weight in experimental cases in which nothing was given but strychnine hypodermically for a number of days. There was nearly always decided gain in weight in the cases that I have observed. I gave it in large doses.

In regard to the cumulative effect, I do not think that I have any observations in regard to the accumulation of the drug in the system. While I believe that strychnine acts like drugs that do accumulate in the system—such as atropine, digitalis, and strophanthus—yet there is a marked difference between the action of strychnine and the drugs mentioned. Strychnine does not have the profound effect upon the circulation that the other drugs have. We know that the cumulative effect of digitalis is due to the fact that elimination is checked.

I am sorry that I can not agree with Dr. Cohen in regard to the benefit of small doses in many diseases, although I believe that some diseases are more easily influenced by strychnine than are others. I believe, however, that pulmonary and cardiac diseases, such as were only referred to in my paper, are less easily influenced by strychnine than are many others. It is especially so in asthma, angina pectoris, and the other pulmonary and cardiac diseases to which I have referred, for in them it is perfectly useless to give small doses with the idea of cure. You might as well turn a garden hose on a Chicago fire as to expect to do much good with small doses in these diseases. I have tried small doses without any benefit.

In regard to the destructive action to which Dr. Cohen has referred, I can hardly believe that strychnine in ordinary physiological doses can have a destructive influence upon the nervous

system, although I can see how a large and poisonous dose could have such influence upon the nervous system. Indeed, we well know that atropine, digitalis, alcohol, and many other drugs, in common with strychnine, have such a disintegrating effect in toxic doses; but to say that in stimulant doses they have the same or even a similar effect is very far from the mark. It seems to me to be a confounding of the physiological with the pathological effects of a drug. Although I administer strychnine in large doses, I always remain within the sphere of its stimulant action. In fact, I fail to conceive how any drug which improves the nutritive state of the body can at the same time have a destructive influence on any tissue, except in so far as it may enhance the physiological waste of the body, which in turn is compensated by an increase in its physiological repair.

The Alvarenga Prize of the College of Physicians of Philadelphia.—It is announced that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, amounting to about a hundred and eighty dollars, will be made on July 14, 1894, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but can not have been published, and must be received by the secretary of the college, Dr. Charles W. Dulles, Philadelphia, on or before May 1, 1894. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within it the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

The End of a Groundless Libel Suit.—At a meeting of the Philadelphia County Medical Society, held October 18, 1893, the following preamble and resolutions were unanimously adopted:

Whereas, Dr. James E. Reeves, of Chattanooga, Tenn., having denounced the so-called "Amick Cure" for consumption as a quack nostrum, and stated that its proprietor was not a physician in good and regular standing, was accused of criminal libel; and

Whereas, The grand jury has ignored the indictment brought against him, be it

Resolved, That the Philadelphia County Medical Society congratulates Dr. Reeves on his bravery—a bravery unfortunately too rare at the present day—and tenders him sympathy in the persecution to which he has been subjected;

Resolved, That no person who makes, deals in, or advertises as a cure a quack nostrum—that is to say, a preparation the composition of which is kept secret—can be termed a physician in good and regular standing, because such action is *ipso facto* sufficient to work forfeiture of membership in this or any other county medical society governed by the laws of the American Medical Association;

Resolved, That a copy of these resolutions, duly attested with the signatures of the president and secretary and with the seal of the society, be forwarded to Dr. Reeves, and that they be handed to the press for publication.

[Signed.] } DE FOREST WILLARD, *President*.
 } F. B. SCHNEIDEMAN, *Secretary*.

The Canadian Medical Association.—The officers for 1893-'94 are as follows: President, Dr. T. T. S. Harrison, of Selkirk, Ont.; vice-presidents, for Ontario, Dr. F. R. Eccles, of London, for Quebec, Dr. J. Stewart, of Montreal, for New

Brunswick, Dr. J. Christie, of St. John, for Nova Scotia, Dr. W. S. Muir, of Truro, for Manitoba, Dr. R. Spencer, of Brandon, for the Northwest Territories, Dr. F. H. Mewburn, of Lethbridge, for Prince Edward Island, Dr. F. B. Taylor, of Charlottetown, for British Columbia, Dr. R. E. McKeechie, of Nanaimo; general secretary, Dr. F. N. G. Starr, of Toronto; local secretaries, for Ontario, Dr. I. Olmsted, of Hamilton, for Quebec, Dr. J. V. Anglin, of Montreal, for New Brunswick, Dr. M. McLaren, of St. John, for Nova Scotia, Dr. R. A. H. McKeen, of Cow Bay, for Manitoba, Dr. A. McDiarmid, of Winnipeg, for the Northwest Territories, Dr. Calder, of Medicine Hat, for Prince Edward Island, Dr. Johnston, of Charlottetown, for British Columbia, Dr. Walker, of New Westminster; treasurer, Dr. H. B. Small, of Ottawa. The place of meeting in 1894 is St. John, N. B.

Some Practical Post-mortem Points.—At a meeting of the Philadelphia County Medical Society held on October 25th Dr. Henry W. Cattell, demonstrator of morbid anatomy in the University of Pennsylvania, read the following paper:

1. Get all the anatomical knowledge you can out of every autopsy you make. It is therefore usually advisable, especially in the case of females, to perform a preliminary laparotomy. Many surgical operations can be practiced upon the body without disfigurement—such as Alexander's operation, oophorectomy, removal of the ear ossicles and vermiform appendix, stretching of the sciatic nerve, symphysectomy, etc.

2. Do not forget to dictate the post-mortem notes while the autopsy is in progress.

3. Respect the feelings of the friends in every possible manner, and always return everything in a private house to its proper place. Be sure to leave no blood marks behind.

4. Be sure you have a legal right to make the post-mortem before you begin. The nearest relative, or the one who is going to pay the expenses of the funeral, should give the consent in writing.

5. Do not take away more tissue from a post-mortem than you are able to thoroughly work up.

6. Try to encourage a demand among the laity for the performance of autopsies.

7. In making an autopsy have a regular method for its performance, which is only to be modified by exceptional circumstances. Finish the examination of each organ in as thorough a manner as possible before the examination of another organ is commenced.

8. Label all your specimens at once with name of person from whom the specimen is removed, character of the specimen and relations in the body, date, and preservative fluid employed.

9. If you are so unfortunate as to cut yourself, wash the wound with running water for four or five minutes, and then dress antiseptically. Do not, out of bravado, go on with the post-mortem if there is any one else present who can complete it.

10. If you are not making the autopsy yourself, do not be too forward in making suggestions to the one who is making it but always be ready to do anything that you are asked to do in connection with the autopsy.

11. Let your medical friends enjoy the autopsy and specimens with you.

12. Get all the post-mortems you can; never refuse to make an autopsy for another, when you possibly can.

13. Tact will get you many autopsies; curiosity of relatives and friends can often be worked upon to get permission for an autopsy.

14. As the object of the autopsy is usually to find out the

cause of death, either for legal or scientific purposes, the post-mortem should, therefore, be conducted in as thorough and accurate a manner as possible.

15. In legal cases be sure to protect yourself in every possible way. The jars (which should never have been used) containing the specimens should be sealed in the presence of a witness. In important cases here in Philadelphia the coroner has both of his physicians present at the autopsy, so that the testimony is stronger; and in case of absence of one of the physicians the other can go on the witness stand and the case not be postponed.

16. If you value your peace of mind do not put yourself forward as an expert witness in medico-legal matters. Knowledge which you already have should be freely given to the court in criminal cases, but the court can not compel you to obtain expert knowledge without your consent.

17. In Germany the legal evidence of a post-mortem held by gaslight has been judged by the court, except under certain peculiar circumstances, to be void.

18. If two persons are lifting the body the lightest weight is at the feet.

19. Chloroform, when placed on a towel and the head enveloped in the towel, will quickly dispose of pediculi capitis.

20. Many signs of inflammation, especially of the mucous membrane, disappear after death. Remember that red flannel often colors the skin red.

21. Make the undertaker your friend. Do not recommend an undertaker who disapproves of post-mortems.

22. It is a good knife that will keep its edge in more than one post-mortem.

23. Do not jump at conclusions too quickly. Tentative diagnoses alone should be made until the post-mortem is complete.

24. Always weigh the important organs, and have some method by which you can tell the right from the left organ in case of the double ones. One nick in the left-sided organs and two in the right will readily distinguish them.

25. Wash your hands frequently during the performance of an autopsy, so as not to allow the blood to dry on the skin.

26. In opening a cystic kidney be careful that the liquid does not injure the eyes or soil the linen, as when the kidney is opened the liquid in the cyst is under pressure and may squirt several feet.

27. A duct can often be easily followed by making a nick in it, and then introducing a piece of broom stick or a groove director in the direction you desire to dissect. This is especially useful in the ureters and the ductus choledochus communis.

28. In writing the account of an autopsy describe what you see; do not use names of diseased conditions. These should be put in under the head of pathological diagnoses.

29. Urine or aromatic spirits of ammonia will best take off the odor from your hands. This odor is usually got from opening the intestines.

30. Ammonia (also the aromatic spirits) will remove iodine stains; a weak solution of the hypobromite solution will remove carbo-fuchsin and other aniline stains from the hands.

31. Any organ which you desire to save should be placed in a safe place so that it will not be returned to the body and sewed up.

32. The dissecting-room is a poor place to study pathology, on account of the chloride of zinc forming with albumin an insoluble albuminate of zinc.

33. Nervous tissue for microscopic study should not be placed in zinc chloride or in alcohol.

34. Remember that a post-mortem, with the exception of the brain and cord, can be made with a penknife.

35. Remember that the thoracic and abdominal organs can be removed by the rectum or the vagina.

36. Before removing the calvaria have a basin so placed that it will receive the blood and cerebro-spinal fluid.

37. Drawings, photographs, casts, cultures of micro-organisms, and microscopic slides are valuable additions to a well-written account of an autopsy.

38. A lesion in one part of the body will often suggest a careful search for a lesion in another part of the body.

39. Do not mistake the normal for the abnormal.

40. Squeezing the gall-bladder after the duodenum has been laid open will often cause bile to pass out, and the papilla, the ending of the common bile duct, can thus be demonstrated.

41. Remember that frozen sections of fresh tissue can be cut and mounted in a half hour to an hour.

42. Three hours is none too long in which to make a complete autopsy.

43. Be careful that the first rib does not scratch your hands when removing the tissues in that region. Therefore cover over the cut ends of the clavicle and ribs with the skin flaps.

44. Blood makes a good glue for affixing labels, and the blood of a person who has died from hydrocyanic poisoning makes a most excellent red ink which will keep for years without the addition of any preservative fluid.

45. Remember that after the brain has been removed the fundus of the eyes can be removed by a circular incision posteriorly, without disfigurement. The inside should then be stuffed with dark-colored wool or cloth.

46. In private cases you will be frequently judged of as to your skill as a pathologist by the neatness with which you sew up the body.

47. If you discover suspicious lesions, always stop the post-mortem and report the case at once to the coroner.

48. Remember in warm weather that the intestines are especially liable to undergo rapid decomposition when exposed to the air.

49. Remember that a railway train or cart may pass over the body and there be no abrasion in the skin more than a brush burn.

50. Remember that the color of organs is frequently changed when exposed to the air by the oxidation of the hæmoglobin. Also that the sulphide of iron frequently discolours organs after death, due to the sulphureted hydrogen during decomposition precipitating the Fe of the hæmoglobin.

51. The clavicle can be grasped and moved and the clavicular-sternal articulation thus readily discovered.

52. In removing the cord the following method may be used without disfigurement to the skin of the back part of the neck: Make a circular incision from the middle of the trapezius muscle of the one side to the middle of the same muscle of the other side, using as the center of the circle the external occipital protuberance. This will take you in the median line to about the second dorsal vertebra; then dissect away the skin with the muscles attached, and elevate this flap with a tenaculum and draw the shoulders backward. A sufficient amount of space will be given to then remove the cord in the usual manner.

53. If the rectus muscle on each side is cut near its origin, in the direction of Poupart's ligament, the abdominal cavity will be much more thoroughly exposed to view than in the ordinary manner. First, however, examine with the finger for hernia.

54. And lastly be honest. Every one diagnosticates lesions during life which are not found at the post-mortem. Even after a most careful post-mortem it is often impossible to tell from what the patient died.

Original Communications.

SOME REMARKS ON THE
STRUCTURE OF ŒDEMATOUS NASAL POLYPI.*

By JONATHAN WRIGHT, M. D.

THE material upon which the following observations were made was obtained from about one hundred and fifty individuals. A few were normal cases; the others were suffering from various pathological conditions of the upper air passages. About twenty-five of these cases furnished the nasal polypi. All the polypi were removed during life. As nearly all were multiple, the number of separate polypi examined must certainly have been more than fifty, but I have no definite record of that point.

This material was prepared for histological examination principally by hardening in alcohol, imbedding in celloidin, and double staining with hæmatoxylin and eosin. Other methods of hardening and staining were also used for comparison.

It is a matter of great regret to me that no material could be obtained by post-mortem section of the nasal cavities. Operations *intra vitam* can never be depended on to furnish the true base of these growths. For this reason alone Zuckerkandl's examinations as described in his last volume † would be of great value.

Epithelium.—From its distribution in the body one can not help drawing the inference that the pavement epithelium is the form chosen by Nature to protect surfaces subjected to friction or irritation of various kinds. Haycraft and Carlier ‡ found ciliated cylindrical epithelium in the trachea of a fetal kitten. After birth the cilia are lost and the cylindrical epithelium gradually takes on a squamous type according to its exposure to friction.

Normally the epithelial lining of the nasal mucous membrane is cylindrical, ciliated below and smooth above the middle turbinated. Cylindrical epithelium, occasionally ciliated, is the variety that usually covers Œdematous polypi. Careful microscopical examinations by several other observers have shown places in these polypi where the cylindrical type is changing or has changed into the squamous. This change was first noted in that part of a nasal polypus which projected from the nose, and was the most exposed to irritation from the action of the air and the friction from without. Subsequently the same alteration has been noted deep in the nose and supposed to be due to the chafing of the polyp at that point against contiguous parts. While this change has been described and figured by several competent and trustworthy observers, it has never been my fortune to see it in typical gelatinous polypi.

I have, however, repeatedly observed it in those growths

where œdema was not a prominent feature. I have seen it so pronounced in a sarcoma of the middle turbinated that from the fragments removed at one time I thought the growth was an epithelioma.

The sections from which the drawings in Fig. 1 have been taken are not from a typical œdematous polypus. It

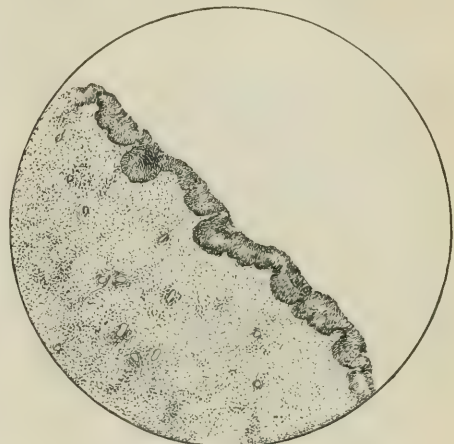


FIG. 1 (a).

is an advanced condition of chronic inflammation of the mucous membrane of the middle turbinated bone in which there are a few areas of œdema. The patient was suffering from empyema of the antrum of long standing. The source of the irritation was evidently not friction of one

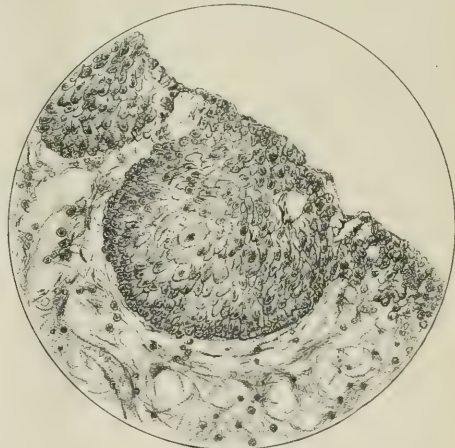


FIG. 1 (b).

surface on the other, but the action of the ichorous purulent discharge from the antrum and its formation into crusts. The change to the squamous type in atrophic rhinitis may be regarded as an analogous process.

* Read before the American Laryngological Association at its fifteenth annual congress.

† Zuckerkandl. *Normale und pathologische Anatomie der Nasenhöhle, etc.*, II. Band, 1892.

‡ Haycraft and Carlier. *Journal of Microscopical Science*, vol. xxx, part 4.

Where this change in type takes place in the epithelium you will always notice the increase in the thickness of the layers. Often this thickening or proliferation takes a somewhat symmetrical form, making a scalloped fringe, as seen in the low-power drawing (a). Examined with the high power (b), it looks as though this proliferation must have started at the center of each scallop from one or two cells. With one twelfth oil immersion the spinous processes of the pavement cell may be seen (c). A moderately careful

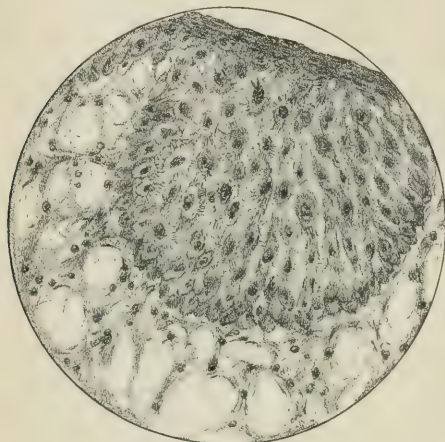


FIG. 1 (c).

examination of these sections shows a gradual change, from one end of the specimen to the other, of the columnar to the squamous form of cell. The flat cell, however, rarely if ever in this metamorphosis in the nose reaches the dimensions seen in the skin. Although the proliferation of cylindrical cells into the form of digitations and papillae has been mentioned, I have never seen it. When this proliferation becomes very marked a change of type is always observed in my experience. There are nearly always found places on the surface of these polypi where the epithelial layer is thicker than others and thicker than normal; but where it takes this scalloped form the cells are atypical.

Stroma.—This may best be studied by comparing sections prepared in several different ways, as one method brings out some features at the expense of others.*

Coagulation of the fibrin in the serum which infiltrates the stroma renders differentiation of the connective tissue from it necessary for its study.

When this is accomplished, by means of staining or otherwise, it will be seen that we have as a framework for the mass a network of areolar tissue the size of whose

meshes is determined by the amount of serous infiltration. Where the latter is slight we have a firm, where abundant a soft, yielding mass; upon this also depends its degree of translucency. These meshes, usually long spindle shaped, are filled with fibrin coagulated into granular material, and threads, cobweb in their fineness under a high power. Sometimes the individual fibers of the fibrous tissue are separated one from another, and with the Weigert stain may be seen, in faintly yellow wavy outlines, the interstices filled with violet fibrin. Usually, however, the fibrous tissue is split up into strands of many fibers. There is no homogeneous groundwork taking a deep blue stain with hæmatoxylin, and dotted with branching eosin-stained cells, as in typical myxomata.

Oedema.—As a matter of fact, we have all degrees of this serous infiltration, so slight as to be only recognizable under the microscope in small areas up to the gelatinous state, where, if the fluid is squeezed out of the growth, very little is left.

The posterior ends of the inferior turbinated bodies and the swellings of the mucous membrane on each side of the posterior border of the septum often have in the rhinoscopic mirror a "water-logged look," and when removed with the cold snare would seem translucent if they were not so gorged with blood. Histologically they show no difference from the typical oedematous polypus except as to the degree of serous infiltration. The microscope reveals in one case a condition that is recognizable to the naked eye in the other. Why the typical oedematous polypus occurs more frequently in the upper part of the external wall of the nasal cavity is still a matter of conjecture, not of demonstration.

The oedema is always more marked at the most dependent parts of the growth, whether pedunculated or broad based, but I have never seen it penetrate the epithelial layer, although this has been described, and it has been said that rupture of the epithelial layer has taken place spontaneously so that the serum drained away. It may be doubted if the watery discharges from the nostrils, that are so frequently a distressing symptom in these cases, come as a rule directly from the water-logged tissues. It is probably always due to the irritation of the growth on the surrounding mucous membrane. Osmosis on wet days is evidently, as the law of physics would teach us, from without inward. The serum, containing not only salts in solution but large quantities of mucin, probably does not exude at all or but slightly. Even under the pressure exerted by the snare the external envelope of these growths usually remains intact except in the case of cysts near the surface.

That the elasticity of the tissues exerts considerable pressure on the fluid which they contain may easily be demonstrated by incising a large polyp after it has been removed, laying it on a clean white plate, and noticing the shrinking that takes place in its size, some of the fluid being rapidly squeezed out. This is particularly striking in the oedematous posterior ends of the inferior turbinated bodies referred to above. The more "gelatinous" the growth, the less resiliency it seems to have. The origin of the fluid is, of course, from the blood-vessels, but what the

* I have prepared sections as follows:

1. Hardening in alcohol; imbedding in celloidin; unstained and stained with hæmatoxylin and eosin.
2. Preliminary hardening in Müller's fluid, stained and unstained.
3. Weigert's fibrin stain.
4. Mounting unstained sections in glycerin with a little acetic acid.
5. Washing out the celloidin with ether and treated as above.
6. Washing out the mucin with baryta water.

mechanism of its production may be a matter of speculation and a problem to be left to the general pathologist. It is not a passive oedema. I have never heard of oedema of the mucous membrane of the nose in general anasarca, though it occurs about the soft palate and glottis. Clinical observation and histological study suggest that it is caused in some way by an antecedent chronic inflammation of the nasal mucous membrane. It may be supposed, first, that this has caused some diminution in the resiliency of the tissues which normally offer an elastic support to the blood-vessels; second, that occlusion of the blood-vessels occurs at some points, since thickening of their walls may be demonstrated in many sections, or they may be occluded by pressure of surrounding distorted tissues. Paralysis of the vaso-motor nerves is a matter of pure speculation.

The fluid contains serum albumin, which can be demonstrated in the undiluted state by the usual tests, though apparently it is not nearly so abundant as in pleural or abdominal effusions. It contains large quantities of mucin, which may be extracted from the tissues by cutting the polyp in small pieces and allowing them to soak for several hours in baryta water. Heat produces no perceptible change in the resultant fluid. Acetic acid, however, throws down an abundant thick precipitate. Alcohol also produces a slight precipitate. This richness in mucin has been adduced as a proof that these tumors are true myxomata. Mucin is the abundant constituent of the secretions of the normal as well as the abnormal mucous membranes. Mucin has also been demonstrated in inflammation of the connective tissue. It is the product of many varieties of cells. Occurring in the fluid of a nasal polypus neither proves nor disproves its myxomatous nature.



FIG. 2.

Round Cells.—The exudation of small round cells from the blood-vessels and the production of young connective tissue around them may be seen in Fig. 2.

These areas, as you will observe, bear some resemblance

to small round-celled sarcomatous tissue. This is the only histological suggestion I have ever seen of the reported malignant transformations of these growths. While such so called transformation may occur, just as sarcoma may appear in previously normal tissue, it is probable that the idea of its frequency arises from mistaking the character of the growth in its origin. Again, we meet in nasal pathological histology the difficulty, to which I have on several occasions drawn attention, of differentiating between granulation tissue, lymphoid hypertrophy, and small round-celled sarcoma. In this section the origin of the area is evident, but when in the section of these areas the lumen of the blood-vessel does not happen to be included, the resemblance to sarcoma is marked. In the same drawing you will notice at some distance from the blood-vessels round lymph cells of considerably large diameter, few in number, more widely separated one from another, and entangled in the fibers of the areolar tissue, the spaces of which are dilated and filled with granular fibrin. The ordinary hardening in alcohol and double staining does not reveal the branching cells of the connective tissue. Unstained and mounted in glycerin with a little acetic acid, the sections show them. A few cells may be seen in the connective tissue treated in this manner which resemble endothelial cells, but it is difficult to say whether these are derived, as some maintain, from the walls of the lymphatics, or are really altered connective-tissue cells. Any further evidence that the areolar spaces are really dilated lymph channels I have not been able to observe.

The exudation of small round cells into the stroma is frequently very marked. With the ordinary double staining the presence of one of these round cells in a dilated areolar space frequently gives the appearance of a large flat epithelial cell, the small cell serving as a nucleus and the walls of the areolar space serving as the edge of the cell. A very little study, however, easily shows its true nature.

Glands.—Billroth* first described nasal polypi more than thirty-five years ago as being made up principally of glandular tissue. In his *Surgical Pathology* in 1882 he says: "The majority of the mucous polypi of the nose . . . consists mostly of distorted and also of newly formed mucous glands whose closed ends are dilated occasionally to mucous cysts." This statement has been repeated by a few and contradicted by many. In my experience oedematous nasal polypi always contain fewer glands by far than the normal tissue. I presume true adenoma does occur in the nose. I have never seen one and I have never read a description of one which did not correspond fairly well with ordinary hypertrophy in which the glands had not for some reason undergone the degeneration usually seen in them from such chronic inflammatory changes. There is great discrepancy in the statements as regards the frequency of gland tissue in nasal polypi. It seems to me that this difference of opinion has arisen from the fact that the majority of observers have examined only those polypi removed during life with the snare, while others have ex-

* I have not been able to obtain a copy of Billroth's original paper—*Ueber den Bau der Schleimpolypen*, Berlin, 1855—but my information in regard to it is derived from quotations, frequently unreliable.

amined those taken post mortem from heads laid open by a longitudinal section. Now, the serous infiltration being always most abundant at the most dependent part, the more marked it is, the less there is seen in the section of the normal parts of the mucous membrane—*i. e.*, the glands, blood-vessels, etc. The budding or protrusion of what is to be a pedunculated polyp begins at some weak or more diseased spot of the mucous membrane, and, push-

disorganized gland by the proliferation of the fibrous tissue of stroma around it. Sometimes fibrous nodules are seen which are apparently the ultimate results of this fibrous proliferation. This is an analogous change to that occurring in the blood-vessels in syphilitic inflammations. It is not very common, but a moderate number of sections of the hypertrophied mucous membrane will always furnish a few examples. I have never observed it in the œdematous areas themselves.

Blood-vessels are scanty and small. Their walls in some cases are much thickened in their fibrous layer. They are frequently seen in section just beneath the epithelium, as shown in Fig. 3, corresponding to the delicate red tracery seen in the freshly removed polyp. In the stroma they are frequently surrounded by the zone of round-cell infiltration and new connective tissue spoken of above and shown in Fig. 2.

Cyst formation is occasionally a striking feature. Fig. 4 represents the photograph of a section of a sessile œdematous growth*—the so-called polypoid degeneration—under a low power.

You will see that the parenchyma is riddled with these glandular cysts. Microscopically a large number of glands may be seen in various stages of degeneration. Almost always before these cysts reach microscopic proportions the glandular epithelium is completely destroyed. This change is probably due to the plugging of the glandular conduits, and to the loss of elastic support normally furnished by the stroma, but lost in the process of inflammation and serous infiltration. Occasionally a cyst is formed by a dilated blood-vessel. Such a one you see in Fig. 5—another low-power photograph. In this case smaller dilata-



FIG. 3.

ing out, carries down with it only a small part of the normal subepithelial structure. Consequently the glands relative to the extent of the swollen œdematous tissue are scanty, sometimes not seen at all in very many sections. Where the connective-tissue fibers are abundant and the spaces between their bundles small—*i. e.*, where the serous infiltration is slight—glands are seen to be relatively more abundant. The same is true of the blood-vessels and for the same reasons. Operations with the snare or other instruments are frequently more or less incomplete, the pedicle being rarely severed at the base. The apparent pedicle is really nothing in many cases but the tissues squeezed together by the tightening snare. The place of origin of the growths makes a great difference. Around the hiatus semilunaris the glands are not normally so abundant as along the free border of the middle turbinated or on the septum, consequently the polypi that spring from this region do not contain so many of them. When these glands are found they are always extensively affected by morbid changes. The glandular epithelium is swollen and granular; the outlines of the cells are frequently lost and sometimes all the cells in the section of the gland are separated from the walls; occasionally nothing is seen of the epithelium at all, only the round fibrous ring being left. Occasionally in chronic rhinitis and in hypertrophy of the nasal mucous membrane, where œdematous areas have begun to appear, one may observe an encroachment upon a

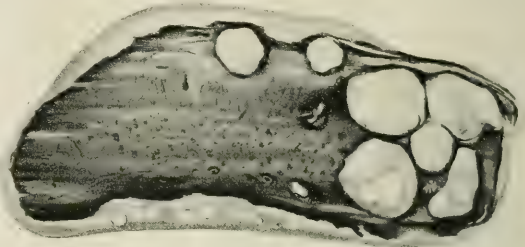


FIG. 4.

tions of neighboring blood-vessels occur. It is a cavernous angiomatous hypertrophy of the posterior end of the inferior turbinated body. Examinations of other sections of this growth show small areas of œdematous infiltration; but, of course, this vascular dilatation is never observed, or only to a very slight degree, in typical gelatinous polypi. Another method of cyst formation has been described—*i. e.*, the breaking down of the dilated areolar spaces into one or more large cavities. This is possible, but I have never seen it. There are many places, indeed, where the stroma has given way and these spaces communicate with one another in the sections, but I have always thought that

* Specimen kindly sent me by Dr. Knight.

this was principally the result of the hardening and cutting process. The effusion of blood into the tissues and the breaking down of the clot into a cyst I have never seen

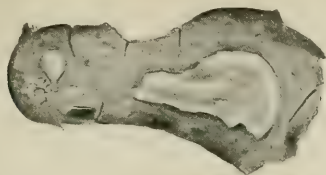


FIG. 5.

The effusions of blood which one occasionally sees in the tissues seem to be the result of violence in removal, though it has been described as occurring spontaneously. There is no reason why one of these glandular cysts should not go on growing in a polyp until it occupies the whole of it. This is doubtless the origin of the pure nasal cysts that have been described.

Hyaline bodies resembling those of rhinoscleroma, described as very common by Stepanow,* I have never observed, though I have not adopted any special method of staining to demonstrate them.

Fat cells, or cells containing oil globules, as seen in myxomata, I have never observed.

Nerve fibers I have not looked for. They are said not to exist.

Bone spicula I have never seen in these growths, as described by Zarniko.† In bone disease of the ethmoid accompanying polypi, pieces of bone are frequently included in the mass removed.

On the relation of ethmoid bone disease to nasal polypi Woakes has laid great emphasis. From the fact that ethmoid bone disease frequently exists without polypi and polypi usually exist without bone disease, we are warranted in concluding that neither is essential to the other, but both are the results of some antecedent pathological condition.

I do not mean to deny that *myxoma* may occur in the nose, but I do not believe that is the *usual* character of the growth we know clinically as a gelatinous nasal polypus. Were it so, the frequency of myxoma formation there would far exceed its presence in all other situations.

From the study of the pathological histology of œdematous polypi which I have detailed to you, from much similar work which is merely collateral to the subject matter of this paper, and, lastly, from clinical observation, it seems to me very evident that we have here to do not with a myxomatous tissue, but with one of the results of chronic inflammation of the mucous membrane, which in its early stages is usually hypertrophic. Hypertrophic rhinitis may result (1) in atrophy, with or without œzema; (2) in œdematous nasal polypi, broad-based or pedunculated; (3) in bone disease, especially of the anterior end of the middle turbinate. This bone disease is usually at first hypertrophic or hyperplastic. This may result in rarefaction,

forming bony cysts, or in caries, wrongly called necrosis by Woakes. This caries is frequently the cause of extensive suppuration of the ethmoid cells. All these three pathological states may exist separately or in combination, having had a common origin.

œdematous polypi are frequently associated with empyema of the antrum. The antrum suppuration may be secondary to ethmoid suppuration, or due to the occlusion of the hiatus semilunaris by the polypi. In the vast majority of cases, however, suppuration of the antrum is of dental origin. I mean those cases with recognizable symptoms. The so-called "latent empyema," it seems to me, is found more often in recent literature than in practice.

œdematous nasal polypi are spoken of as recurring after operation. I doubt if they ever recur growing from the stump left after removal. It is almost always from adjacent membrane; scar tissue does not readily become œdematous.

If you will carefully observe in cases of recurrence where you can see the base of implantation, I think you will notice that the new growth does not occupy exactly the same position as the old. Cauterization of the base of these growths, therefore, is not of so much importance as the cauterization of the adjacent mucous membrane. I want, however, to protest here against the statements of the ease with which the base of these growths is reached.

You are all familiar with Zuckerkandl's declaration in his first volume of the inaccessibility of the region from which these growths most frequently spring. In a bloody nose, usually narrow, it is a physical and technical impossibility to see or reach the base of implantation in the majority of cases. Removal of the anterior end of the middle turbinate is only a possible feat in a very few cases. Those growths springing from the free border of the middle turbinate (and they are usually sessile) have, of course, accessible bases. Cauterization here is frequently followed by atrophy of the mucous membrane over a larger area than that actually burned.

Nothing, of course, need be said before this association of the practice (if it really exists) of using a cautery beyond the reach of one's vision in the upper region of the nose.

TWO CASES OF NASAL TUBERCULOSIS.*

By JOHN W. FARLOW, M. D.,

BOSTON.

CASE I.—Mrs. A., twenty-three years of age, consulted me a year ago with the history of considerable discharge in the post-nasal space, and a frequent blocking of the left nostril by large crusts, tendency to bleed from the same nostril, hard, dry cough, and headache in the region of the posterior fontanelle. Putting the finger into the left nostril and touching a sore spot caused pain to be felt in the top of the head, where the headache was generally located.

There was a shallow, elongated ulceration of the lower and anterior part of the left septum. The mucous membrane seemed thick and infiltrated, and the ulcer was covered with a

* Stepanow. *Monatssch. f. Ohrenheilk.*, 1891, No. 5, R. 134.

† Zarniko. *Virchow's Archiv*, No. 128, p. 132, 1892.

* Read before the American Laryngological Association at its fifteenth annual congress.

thin, yellowish-gray secretion. It was fully an inch in length, and about a quarter of an inch wide in the center. The upper part of the nostril was blocked by an easily-bleeding, irregular, reddish mass, about the size of a cherry stone, which seemed to spring from the under side of the middle or upper side of the inferior turbinated bone. On account of the profuse bleeding, I was unable to determine this point, but in a few days I saw that the attachment was to the upper part of the inferior turbinate.

There was nothing abnormal in the right nostril or post-nasal space. There was considerable hypertrophy at the base of the tongue, and swelling and redness of the arytenoids, such as suggests tuberculosis. Examination of the chest was negative. There was not much of any expectoration, and examination of the crusts from the nose failed to show any bacilli. There was no specific history, and specific treatment did not influence the case.

Astringent applications reduced the vascular mass, and there remained a marked ulceration of the inner edge of the lower turbinate. This was shallow, irregular, with a reddened edge, and the secretion which formed on it tended to harden into a good-sized crust.

Curette, lactic acid, and cautery were used on both ulcers, and after a while that on the septum entirely healed, and has not formed again in the last four or five months. That on the inferior turbinate has been more obstinate, and, although nearly healed, manifests a tendency to reappear in a new place. The headache has continued with occasional intermissions. Careful examination of eyes, ears, etc., and all sorts of local and general treatment, have failed to give a clew to the cause or bring about any relief.

CASE II.—Mrs. B., aged seventy-one years, in unusually robust health, consulted the late Dr. Hooper for a soft, obstructive growth of the right nostril. There was no pain or discharge. About a teaspoonful of soft tissue was removed by the snare and otherwise, and considerable hemorrhage resulted. Microscopical examination of the growth showed it to be tubercular. There had existed a curious eruption of the left side of the face, the nature of which Dr. J. C. White was unable to make out.

I saw her a few months ago, and found a soft, reddish mass projecting from the anterior part of the right septum and occluding the nostril. There was a less degree of bulging and thickening of the septum toward the left nostril. The rest of the nose, post-nasal space, and larynx were unusually healthy. There was no cough, and the only symptom was the occlusion of the right nostril.

With the cautery and a snare I have removed the growths from both sides of the septum, and curetted and cauterized whatever irregularities remained. The septum is perforated, and there are still some few places which will need further treatment.

SEARS LABORATORY, HARVARD MEDICAL SCHOOL,
BOSTON, MASS., May 22, 1893.

DEAR DOCTOR: The specimen from the case of Mrs. _____ was a small, flat, nodular growth, quite soft, and of a grayish-white color.

Microscopic examination showed it to be made up of numerous small, rounded centers composed of round and epithelioid cells, scattered among which were numerous giant cells. The centers of these masses had undergone a cheesy degeneration.

The structure was in every way similar to that of miliary tubercle.

A number of sections were stained for tubercle bacilli; but there were none found in those examined.

Yours very truly,

W. T. WHITNEY.

J. W. FARLOW, M. D.

The growth was examined microscopically and pronounced by Dr. Whitney and Dr. Councilman to be undoubted tuberculosis. Dr. Whitney remarked that it was unusual for so large a tuberculous mass to project on to a mucous surface and not ulcerate. No ulceration existed when I first saw her.

Dr. White has recently decided that the eruption on the face is probably tuberculous and it has much improved when treated locally with that diagnosis in mind.

The nose is certainly not a favorite place for the growth of the bacillus of tuberculosis and very few cases of its occurrence are reported. Two forms are generally described—the ulcerating and the proliferating, with increased new growth. My second case belongs to the latter class. There was an infiltration with tubercular elements and resulting enlargement of the septum sufficient to occlude a good-sized nostril, but no ulceration or discharge.

The first case is a chronic, obstinate ulceration of the septum and inferior turbinate, with a soft, vascular, hypertrophied mass springing from the inferior turbinate, of low vitality. Although not confirmed by microscopic diagnosis, I think I am justified in calling it tuberculosis. This did not have the form of the common ulcer of the septum, but was long and narrow, extending nearly half the length of the septum. There was no history or sign of specific disease, and specific treatment was of no avail. Ulcerations of the turbinate are very uncommon, and in this case, following upon the soft vascular growth, were unlike anything I had seen before. Calling such cases scrofulous or lupoid is only begging the question, and, to my mind, less reasonable than to place them in the category of tuberculosis.

DISEASES OF

THE ACCESSORY SINUSES OF THE NOSE,

AND AN IMPROVED METHOD OF TREATMENT FOR SUPPURATION OF THE MAXILLARY ANTRUM.

By GEORGE W. CALDWELL, M. D.,
INSTRUCTOR IN THE NEW YORK POLYCLINIC, ETC.

The frequency with which sinus disease is recognized is in proportion to the care with which the sinuses are explored. An examination of the nose is not scientifically correct until by transillumination and other means the condition of the sinuses has been ascertained. Sinus disease is not by any means rare, although seldom mentioned in literature. In three hundred cadavers examined by Gradenigo (*Annales des mal. de l'oreille*, No. 8, 1891), nineteen cases of empyema of the maxillary sinus were found, of which six were bilateral. The proportion of cases in which the affection is recorded as bilateral varies considerably among observers; for instance, Zeim (*Monatssch. f. Ohrenheilk.*, Nos. 2, 3, and 4, 1886) gives the proportion of bilateral to unilateral as one to two. MacDonald (*Dis. of the Nose*, London), in a series of thirty-five cases, found only two cases to be bilateral, while Lichtwitz, of Bordeaux (*Journal of Laryngology, Rhinology, and Otology*, London, April, 1892), found in forty cases twelve to be bilateral. The latter observer found large numbers of pneumococci, streptococci, and other bacteria, and Luc found the *Strepto-*

coccus erysipilatos in the pus from an antrum. It is evident that such a favorable culture medium is a constant menace to the health of the patient, and clinically it is observed that a large number of cases of purulent sinus disease pass into pulmonary tuberculosis.

The subjective symptoms are frequently modified by the concurrent intranasal disease, such as polypi or hypertrophy. Discharge from the nose is not necessarily large, and may be variable, or it may pass into the rhinopharynx, where it dries in the air current or drops into the throat, exciting cough.

Pain is perhaps the most constant symptom, although if drainage is free it may be slight or absent, except when an acute cold or congestion obstructs drainage. When present, if from *antral* causes, it is greatest in the face; if from the frontal sinus, it radiates from its neighborhood, while pain from the ethmoid cells is referred to the orbits. Frequently the pain is periodic in character, and there is tenderness over the nerves. Decomposition of retained secretions may generate an odor which may be subjectively or objectively unpleasant.

In the diagnosis, transillumination should not be depended upon to the exclusion of other valuable means of diagnosis. Beyond dispute the one absolute proof is the detection of pus escaping from the sinus. This may be secured in all the cells without resorting to exploratory operations. It will be remembered that the frontal, maxillary, and anterior ethmoidal sinuses open in close proximity to each other, opposite the anterior tip of the middle turbinate body, behind a semilunar fold of mucous membrane, the concavity of which looks upward and backward. The relative position of these openings is of diagnostic value. The ostium maxillæ is by far the largest opening, and occupies the lowest position of the crescentic space behind the semilunar fold. Into the upper arm of this crescentic space opens the duct from the frontal sinus, while more protected under the middle turbinate is the opening into the anterior ethmoid cells. This semilunar fold acts as an imperfect valve to the maxillary sinus, and incidentally guides fluids from the higher cells into the antrum, as I have repeatedly demonstrated on the cadaver.

For this reason the diagnosis of empyema of the antrum is not sufficient until the frontal and anterior ethmoid cells have been excluded. The antrum may be the *receptacle* (not the origin) of pus, or become involved secondarily. A method of diagnosis, therefore, which shall be exact and inoffensive is of great importance. If pus is formed in the middle meatus and the olfactory slit is clear, it must come from the anterior group. The discharge being removed and the middle meatus cocaineized, the position of the appearance of the first drop is significant. Pus rolling over the lower portion of the hiatus semilunaris always comes from the antrum. If it first appears in the upper arm of the hiatus, it must come from the frontal sinus, while if the anterior ethmoid cells are suppurating, discharges will escape from under the middle turbinate body. Diseased cells, however, may not be full to overflowing at the time of the examination. It is therefore well to insure the diagnosis, by washing the frontal sinus and

antrum with an aseptic solution by means of a small flexible silver catheter. This is not difficult to do after cocaine has been applied, if the operator is familiar with the position of the openings. The condition of the return water will show the state of the cells. The practice of injecting hydrogen peroxide should be mentioned only to be condemned. The cells are in too close proximity to the brain to make the pressure produced by the escaping gas safe or justifiable. The antral exploratory operation advised by Zeim (*Monatssch. f. Ohrenheilk.*, Nos. 2 to 4, 1886) of drilling a small opening through the alveolar arch is entirely unnecessary, as is that proposed by Lichtwitz (*Journal of Laryngology, Rhinology, and Otology*, London, April, 1892) of puncturing the antrum through the inferior meatus with a trocar. A diagnosis may always be established by inspection, irrigation, and transillumination.

If in the acute stage the normal opening is enlarged, to allow free drainage, and the sinus frequently irrigated with antiseptic solutions, resolution will usually occur; but in the chronic condition, with polypoid degeneration of the mucosa, and deposits of caseous material, nothing less than free opening, curetting, and draining will effect a permanent cure.

The frontal sinus may be freely opened by enlarging the infundibulum through the nose with the curette, and the sinus irrigated and medicated by means of a soft silver catheter. I have educated patients to catheterize their own frontal sinus for home treatment. The old operation of making a large opening through the forehead is necessary only in cases of extensive exfoliation of necrotic bone. When the ethmoid cells are affected as well, I prefer to open them freely with a clipper and curette as a preliminary operation. As both of these operations are done under cocaine, the repetition is not objectionable. For opening the antrum, various methods have been employed. Hunter's operation, of drilling through the socket of a tooth, is still practiced by some, but no careful surgeon would sacrifice a tooth for that purpose. This operation does not fill the indications, as a small opening does not allow a thorough removal of *débris* and polypoid tissue, and a sufficiently large one would allow entrance of food; and the constant drainage of pus into the mouth is not a pleasant subject for contemplation. The operations of Mikulicz, Thornwall, and Krause (*Berliner klinische Wochenschrift*, 1889), having for their object the opening of the antrum through the inferior meatus by the knife, trephine, or trocar, respectively, are perfectly satisfactory from an æsthetic point of view; but, unfortunately, in many cases, the inferior turbinate hangs so low that it is difficult to reach behind it high enough to make a sufficiently large opening for free drainage, while a thorough exploration and removal of diseased tissue is impossible. The operation recommended by Christopher Heath (*Transactions of the Odontological Society of England*, November, 1889), of opening through the canine fossa, has the advantage that it is easy to make a sufficiently large opening to allow thorough curetting of polypoid tissue, cheesy *débris*, necrotic bone, or whatever may produce or continue the disease; but it is open to the objection of dis-

charging into the mouth, its tendency to close, and continued pain and tenderness of the face.

My own method in those cases has been to make a large temporary opening in the canine fossa, through which the antrum is thoroughly explored, all deleterious material removed, and the antrum thoroughly cleansed. A large counter opening is then made into the inferior meatus and the primary opening closed. All subsequent irrigation, drainage, and medication is conducted through the opening in the inferior meatus. By this method I have secured the best results, with a minimum of inconvenience to the patient.

The posterior ethmoidal and sphenoidal cells form what may be called the posterior group. Their openings are above the middle turbinated body, and can be studied only in the rhinoscopic mirror. The posterior ethmoid cells drain by several openings above and below the superior turbinated bone; therefore pus found in this region or seen in the anterior examination above the middle turbinated body must have escaped from the posterior ethmoid cells. The usual course of secretion is downward over the posterior extremity of the middle turbinated. The sphenoidal opening is in the posterior wall, at its extreme upper portion, opposite the superior turbinated bone; and the usual course of secretion from it is downward along the posterior wall, close to the septum. The subjective symptoms of empyema of these cells are similar to those of the parallel disease in the other cells, except that the headache is referred to the back of the head, and ocular symptoms are more apt to be of a functional or retrobulbar nature (see Caldwell on Relation of Pneumatic Sinus Disease to Diseases of the Eye, *Medical Record*, April 8, 1893). The treatment is on the same principles as in the anterior group, but is more difficult of access for permanent drainage.

I have enlarged the natural opening of the sphenoidal cell by means of a hook-shaped knife, which cuts only on withdrawal; but the position of the opening is so variable that in some cases I have been unable to find it. Generally a probe, passed through the olfactory slit at the middle of the middle turbinated, will reach the posterior wall near the opening.

The final manipulations must be done with the aid of the rhinoscopic mirror. Treatment of the interior of this cell requires, without doubt, the most difficult and complicated manipulations in nasal surgery.

60 WEST THIRTY-FIFTH STREET.

TRANSILLUMINATION OF THE ACCESSORY SINUSES OF THE NOSE.

By GEORGE W. CALDWELL, M.D.,
INSTRUCTOR IN THE NEW YORK POLYCLINIC, ETC.

The first and essential step in the successful treatment of any disease, special or general, is an accurate, exclusive, and complete diagnosis. Coincident with refinement of diagnosis comes rational treatment, directed to the primary and sustaining cause, and thereby comes the success of modern surgery and medicine. In the so-called special

branches of surgery this has perhaps been more apparent from the concentrated attention which they have received from their devotees. Not many years ago chronic nasal catarrh or post-nasal catarrh were regarded as sufficiently accurate diagnoses to assign to certain conditions. We then learned there were many varieties dependent upon some demonstrable and removable mechanical obstruction or irritation. Yet there remained, after the visible intra-nasal lesions had been corrected, or in which none could be demonstrated, a large class with more or less obscure manifestations in which the respiratory function of the nose was not affected, either directly by large growths producing mechanical obstruction, or indirectly by irritation of the sensitive areas producing hay fever or asthma. When we shall have better diagnostic facilities for exploring the accessory sinuses of the nose, our list of diagnoses will decrease and symptoms increase. That great class of mere symptoms which are dignified by the text-books with such names as chronic rhinitis, suppurative rhinitis, post-nasal catarrh, some varieties of atrophic rhinitis, ozæna with varying degrees of offensive breath, and a large share of facial neuralgias, will disappear from literature as diseases *per se*, and be recognized as symptoms only of sinus disease.

In difficult cases any means which will enable us to investigate easily regions heretofore unexplored or explored with difficulty will be worthy of our study. Such a means may be found in the transillumination of the sinuses by means of the miniature incandescent electric lamp.

For this test there is required a battery capable of developing from five to ten volts, a resistance coil or rheostat for regulating the current to the resistance of the lamp, and a four or five candle-power lamp with switch handle. For an oval lamp I prefer one with a large globe, as the glass does not become hot so quickly. Instead of the complicated lamps with tongue-depressing attachments, I prefer to use ordinary insulated wires, over which rubber tubing is drawn. This allows easier closure of the lips, and is comparatively inexpensive.

The method of examination of the antrum is as follows: The room being perfectly dark, the lamp is placed in the center of the mouth, the lips are closed over the connecting rubber tube, and the connection is made. If the antra are normal, the face will be instantly suffused with a ruddy glow, its brightness differing in different regions according to the thickness of the solid media. The brightest spots will correspond to the thinnest walls—for instance, at the lower margin of the orbit, where the superior portion of the antrum approaches nearest the surface, there appears a crescentic bright spot. The sides of the nose are also bright for similar reasons. The intensity of illumination is not the same for all persons, although constant in the same person. It is brighter in blondes and in the anæmic, and is in inverse ratio to the resistance to transillumination offered by the tissues through which the light must pass. The picture of the illuminated face in health is a striking one, and presents a certain distribution of light which may be termed the normal relation of light and shade. Variation of intensity, if bilateral, is of little importance if there is

the normal relation of light and shade. Variation of intensity in the two sides is very significant, and indicates disease of the darker side.

If the light in its course encounters an abnormal substance, the illumination will be affected—decreased, increased, or distorted. Turbid fluid, pus, cheesy *débris*, or polypoid degeneration of the mucosa, and solid tumors of the antrum, produce darkening of the entire side of the face; while syphilitic, tubercular, or cancerous deposits produce corresponding shadows. On the other hand, a large mucous polypus, by its translucency, higher refraction, and globular form, will concentrate the light and increase the brilliancy. To confirm a diagnosis it is sometimes advantageous to observe the transillumination *intra nares*. The floor of the nose, unless the palate is diseased, transmits clearly. If the outer wall is in umbra, the diagnosis of antral disease is certain. The ethmoid cells are generally considered as outside the field of transillumination; but I have been able to get trustworthy evidence of their condition by applying the small lamp which I devised for transillumination of the mastoid cells against the orbital tissues, between the eyeball and the inner orbital wall, and observing through the nose the illumination of the ethmoid cells and the superior meatus. For the examination of the frontal sinuses the lamp, protected by soft rubber tubing, is placed against the under surface of the supra-orbital ridge, just internal to the supra-orbital foramen or notch. In health the illuminated area corresponds to the extent of the frontal sinus, extending somewhat over the median line, on account of the tenuity of the dividing septum or its eccentric position. If there is suppuration of these cells, this area is in umbra, due to the turbid pus or thickened mucous membrane. The method of transillumination of the mastoid cells for the diagnosis of mastoiditis interna (first published by the writer) will be found in the *New York Medical Journal*, July 15, 1893.

With reasonable accuracy of application, transillumination is one of the most valuable agents of diagnosis which we possess. Very little technicality is required in its use, and, as it gives no inconvenience to the patient, it may be employed when other means are inexpedient.

45 EAST FORTY-FIRST STREET.

A CONTRIBUTION TO THE STUDY OF CLUBHAND.*

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CONGENITAL clubhand is a deformity of very much less frequent occurrence than clubfoot and its cause is involved in great obscurity.

There are clubhands of the acquired variety caused by vicious cicatrices as a result of burns, by paralysis of certain muscles or contraction of others from central nervous irritation, or in other cases resulting from injuries to the

bones of the hand or forearm, but these do not properly come under the head of clubhand such as I wish to mention. As examples of these acquired forms I might mention the following cases:

In the *Philadelphia Medical News*, May 12, 1888, J. K. Young reports a case of clubhand, due to irritation of the brain, which disappeared on the removal of the disturbing influence. The infant was delivered by forceps after a protracted labor and the left side of the head much crushed. A large hæmatoma formed here, and subsequently the right hand was markedly adducted and the fingers and thumb flexed, and the hand was flexed at the wrist, forming almost a right angle with the forearm in the radiopalmar position. The muscles on the radial side of the forearm were firm. The hæmatoma was incised and profuse bleeding followed, and subsequently the deformity gradually subsided, disappearing twenty-four hours before death, which occurred some days later. At the autopsy a fracture of the left parietal bone was found over the position occupied by the ascending frontal and parietal convolutions which had been subjected to great pressure from the effused blood.

Bilhaut, in the *Annales d'orthopédie*, May, 1893, relates a case of clubhand which was supposed to be congenital, but which was really the result of a fracture of the ulna at birth, or soon after, with subsequent loss of bone from suppuration, giving rise to inequality in the length of the bones of the forearm, causing sharp deflection of the hand toward the ulnar side. For the relief of this condition he proposes to remove a portion of the radius and so make it of equal length with the ulna.

The congenital cases of which I wish to speak are of a different kind and may be divided into three varieties: 1. Those where the skeleton is complete and well formed. 2. Where the skeleton is complete but ill formed. 3. Where the skeleton is incomplete and distorted. It is said by various writers that the majority of cases come under the third head, but in the author's personal experience this has not been so, only two of the five cases that have fallen under his observation showing absence of portions of the skeleton; but of course this number is far too small to be used in drawing conclusions of any sort.

In four of these patients there was clubfoot of some variety, and in one case a hypertrophy of one great toe, and the large majority of reported cases are associated with abnormalities of development of some part of the body.

The direction of the deformity may be either in flexion or extension, abduction or adduction, or a combination of two, the most frequent seeming to be the radiopalmar variety.

In those cases where the bones of the hand and forearm are present the prospects of a good result are more favorable than where there is absence of one or more bones. In these milder cases, when seen early, it is sometimes possible to restore the hand to proper shape and function by constant manipulation and retention of the parts in an improved position by some fixed dressing, as, for instance, the plaster-of-Paris bandage, changing the dressing from time to time as the deformity is reduced. Section of the

* Read before the Section in Orthopaedic Surgery of the First Pan-American Medical Congress.

tendons, or ligaments, or fascia may become necessary, especially if the case is not seen in the early stages.

Many of these structures are so situated as to make open section much more preferable than the subcutaneous method, and if the flexor tendons have to be divided it would seem better to operate in the forearm instead of the hand, and to split the tendons longitudinally, and, after having gained such additional length as was needed by sliding the ends past each other, to suture them together once more. I have seen two cases where the deformity was due to shortened flexors of the fingers, one of which had been previously operated on in Baltimore by section of the flexor carpi radialis and flexor carpi ulnaris with great improvement as to function, according to the statement of the parents, but the hand was much distorted and the fingers could be extended only when the wrist was flexed sharply on the forearm. In this case the parents were obliged to leave town before any operation was practicable; and in a second, of similar though less aggravated charac-

upper and lower extremities both being markedly smaller than their fellows. This might possibly be accounted for by disuse, as, on account of the very severe form of clubhand and clubfoot, the boy had depended almost altogether on the left half of his body for assistance. The clubfoot was an extreme varo-equinus and was treated by deep subcutaneous incision in the sole of the foot and tenotomy of the tendo Achillis, the foot then being immediately replaced in the normal position by means of Bradford's clubfoot twister, it being necessary to employ a very considerable amount of force to effect reduction. The foot was then kept in position by plaster-of-Paris boots, renewed about every three weeks, until at the present time his foot is practically in a normal shape.

The clubhand was almost the counterpart of one described by Kirnisson and Longuet in the *Revue d'orthopédie*, January, 1893, and which they had an opportunity to dissect. The radius and thumb were absent, as well as the first metacarpal bone and a certain number of the carpal bones. Exactly which of the latter were absent I am unable to state. The ulna was curved in its middle at an angle of about 30° toward the side where the radius should have been. The hand was almost at



FIG. 1. Congenital clubhand before and after operation.

ter, the presence of inflammation of the cervical vertebrae made it inexpedient to give an anæsthetic, and the operation was therefore postponed.

In a double congenital clubhand at present under treatment the position has been very markedly improved by manipulation and plaster-of-Paris bandages.

Another case of the more aggravated kind has also come under my observation, and these are sufficiently rare to warrant me in describing it at length.

R. B., aged nine years, was seen by me in December, 1892, having a congenital clubhand and clubfoot of the right side, and also a lateral curvature of the spine, the concavity being on the right side. The lateral curvature was apparently due to the imperfect development of the whole right half of the body, the right

right angles with the forearm, bent toward the radial side and flexed on the forearm. The carpus did not articulate with the ulna, but was attached to it by means of firm ligamentous bands.

I first did an osteotomy of the ulna to correct the curve, and, after the bone had firmly united in a straight line, endeavored to stretch the contracted tissues on the side of the arm where the radius should have existed by means of adhesive plaster attached above and below the wrist, and passing around the ends of a wooden splint, which was fastened to the forearm.

After several weeks of traction the hand could not be drawn down far enough to permit the ulna to slide above the carpus, although a considerable elongation of the contracted tissues had been effected. It had been my intention to en-

deavor to form an artificial joint between the lower end of the ulna and the carpus, but on cutting down upon the bones I found that after freeing the end of the ulna from all ligamentous attachments it was impossible to draw the carpus clear of it, and I therefore removed what I took to be the os magnum and unciform. The scaphoid and semilunar apparently did not exist, as in the case which Kirrnisson and Longuet describe. The tip of the styloid process of the ulna was then cut off and the end of the bone inserted into the gap in the carpus formed by the removal of the carpal bones. I had originally intended to wire the bones fast in this position, but on second thought determined to leave the ulna free, thinking that a more serviceable hand would result from this method, and that the bones could be wired together later on if necessary. This operation, of course, shortened the upper extremity still more than Nature had already done, but it seemed to me wiser than the very extensive division of tendons and muscles which would have been required in order to permit the carpus to be pulled down to the extremity of the ulna. The hand was dressed in a straight position, and after about three weeks movements of the wrist were made with the object of creating, if possible, a serviceable joint which should be under the control of the patient.

The position of his hand before and after the operation is shown in the accompanying photographs (Fig. 1), and the boy's control of his motions and his ability to grasp objects is greater now than it was before the operation, while his appearance is vastly improved. He is still wearing an apparatus with a joint at the wrist, allowing flexion and extension, while retaining the bones in a better position than they assume when left to themselves.

In the case described by MM. Kirrnisson and Longuet * the shape, general appearance, and situation of the defective bones correspond so closely with the case I have just

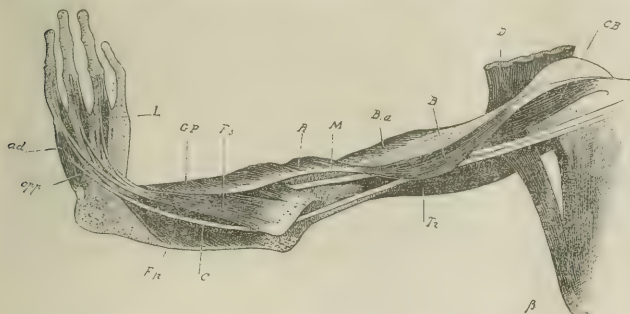


FIG. 2 (after Kirrnisson and Longuet).—B, biceps whose tendon passes in front of the elbow to join the muscles of the forearm; CB, coraco-brachialis; Ba, brachialis anticus; Tr, triceps; R, flexor carpi radialis; G P, palmaris longus; Fd, Fp, superficial and deep flexors; M, median nerve; C, ulnar nerve.

narrated that I think it worth while to quote quite largely from their description of the autopsy (Fig. 2).

Muscles.—Arm.—At the upper end there was a complete absence of the long portion of the biceps; the short portion seemed to be normal. At the lower end the tendon which is inserted into the bicipital tuberosity was absent, and the biceps was gradually merged into a rectangular muscular fasciculus in front of the elbow joint. The brachialis anticus was remarka-

bly small. The other muscles of the arm were normal, but were very slightly developed. On the anterior surface of the forearm the muscular anomalies were so marked as to render it difficult to recognize what muscles were present. There was no pronator radii teres. On the inner border there was a muscular fasciculus continuous with the rectangular muscular mass spoken of above, which below spread itself out at the edge of the carpus, and seemed to correspond to the palmaris longus. The flexor carpi ulnaris was absent. The superficial and deep flexors were in a confused group at their upper extremities, and it was impossible to separate the one from the other at their lower insertions in each of the three last fingers, counting from the ulnar side of the hand. There was no flexor tendon going to the atrophied finger which corresponded to the index; there was no flexor proprius pollicis nor pronator quadratus. On the posterior surface of the forearm the supinator longus and brevis were absent. An undetermined little muscle, which was confused with the other muscles of the posterior surface of the forearm, was inserted toward the external part of the carpus, and represented the radial group. A little muscle fiber ran from the epitrochlear fossa to the internal edge of the carpus. There was no anconeus and no extensor minimi digiti. A single muscle fiber went to the ulnar side of the second finger, representing the extensor communis digitorum.

Hand.—On the outer border of the hand there were no muscles to form the thenar eminence; three lumbricals were present; there were no interossei.

Nerves.—The median nerve was normal. The ulnar passed the elbow in the usual position and was lost on the inner side of the hand. The radial sprang from a common trunk with the musculospiral and was lost on the forearm.

Skeleton.—The scapula and clavicle were well formed. The humerus had no bicipital groove. The musculospiral groove was normal. The elbow joint was very much relaxed; only the trochlear surface of the humerus was covered with cartilage.

The sigmoid cavity of the ulna was well shaped, but allowed only slight movement of flexion and extension of the elbow joint. There was a very sharp anterior curve in the ulna, which made the styloid process very prominent. The radius was absent. The carpus consisted of five bones—two of the first row, the cuneiform and pisiform, and three of the second row, the trapezoid, os magnum, and unciform. The scaphoid, semilunar, and trapezium were absent. The two internal metacarpals were also absent; the other respective phalanges were normal, but the index and the second metacarpal, which it supported, were very short. There was no thumb.

The most extensive article on the subject is that of Bouvier in the *Dictionnaire encyclopédique*, in which are arranged in tables all the cases reported up to 1871. Of the dissections of several cases he gives minute details, and also illustrations of the anomalies, which correspond very closely to the defects in development found in the present case. In regard to treatment but little is said, except that stretching and tenotomy are useful in certain cases, and may be supplemented by apparatus.

Le Dentu, in Jaccoud's *Dictionnaire*, also enters largely into the description of this affection, but says little as to treatment.

* *Revue d'orthopédie*, January 1, 1893. Nouveau cas de main bote congénitale.

Bradford and Lovett, after mentioning the different positions in which the hand may be found, say in regard to treatment that in the worst cases, where there is much bony deficiency, the choice lies between amputation and doing nothing. In the milder cases of resistant muscles stretching by manipulation and apparatus may be efficacious. In general, the treatment must be varied according to the severity of the case.

St. Germain divides clubhand into three groups, similar to those I have mentioned above. Three such cases are in the Dupuytren Museum, and are mentioned by Malgaigne in his *Leçons sur la chirurgie orthopédique*. He suggests manipulation and the employment of apparatus to remedy the deformity.

Redard recommends manipulation and massage in young children where there is but slight fibrous or tendinous resistance; tenotomy is to be done only on the flexor carpi radialis, ulnaris, and palmaris. He does not think very highly of the various orthopedic appliances, and believes that resection and arthrodesis are very rarely indicated.

Hoffa goes quite extensively into the various varieties of faulty development of the upper extremity which may give rise to clubhand. That due to absence of the ulna is very rare, Burckhart and Birnbacher having been able to find only seven reported cases. In regard to treatment, Hoffa mentions massage and retention by means of apparatus, but gives almost no details, while Holmes and Owen are equally brief in their remarks on this point.

The operation which I practiced in the case just mentioned is, as far as I have been able to review the literature of the subject, the first of its kind yet described.

The ulna does not stay in its place as well as I should wish, and if I were to operate in a second similar case I should endeavor to remove the carpal bones without severing the posterior ligaments, and so leave a pocket into which the end of the ulna might be placed, and I may still perform some such operation on this boy if his hand does not seem sufficiently useful.

In a case described by Bouvier, the specimen from which is in the Dupuytren Museum, such of the carpus as is present articulates with the ulna on the side where the radius should have been, the radius being absent. In such a case the proper operation would seem to be the division of the ulna just above the articulation with the carpus, and to turn it at right angles, letting the outer surface reunite with the cut end of the ulna, and thus bring the hand into a straight line with the arm, at the same time preserving the wrist joint.

The anatomical peculiarities of these cases are such that each must be judged by itself, and this brief sketch of the subject is simply offered as contributing to the scant literature of a subject on which much may still be said.

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ALUMNOL IN DISEASES OF THE SKIN.

A PRELIMINARY REPORT.

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ENCOURAGED by their success in the discovery of dermatol and the continued reports of its value, Messrs. Heinz and Liebrecht have recently presented us with a new compound which they have called *alumnol*. In its chemical composition it is a sulphonaphtholate of aluminium.

The discoverers set out with the idea of endeavoring to find an astringent which should be at the same time an antiseptic, and which should also be free from certain marked disadvantages which are present in almost all our available remedies of the class in question. These are almost all organic or inorganic salts of the heavy metals, and they form insoluble albuminates with the fluids of the tissues. This indissoluble coating confines the astringent and antiseptic action of these compounds within very narrow limits, and is the reason why their action is so very superficial.

Aluminium seemed to be the most promising of the lighter metals, and a long series of experiments were made in the attempt to find a compound of it that possessed the desired qualities. The organic salts of the metal, both of the fatty and the aromatic series, were systematically investigated, without any of them being found suitable. Then the double salts of tartaric acid with aluminium and the phenol compounds were tried, but with the same result. At last the sulphonic-acid compounds were reached, and the desired combination was apparently obtained.

Heinz and Liebrecht have given us in *alumnol* a naphtholsulphonic-acid salt of aluminium. It contains five per cent. of aluminium and fifteen per cent. of sulphur. It is a light, fine, white powder, non-hygroscopic and stable. It is soluble in water to the extent of forty-five per cent., and forms a permanent solution. It is freely soluble in glycerin. In alcohol it is only slightly soluble, and forms a blue fluorescent solution. It is soluble in ether. It strikes a blue color with ferric chloride even in very small quantities. It gets darker on exposure to air, whether in solution, suspension, or in mixture. This, however, only renders it less

sightly; it in no way interferes with its chemical or therapeutic properties.

Alumnol solutions are moderately acid, and they precipitate albumin and gelatin. But here at once we notice a marked and important difference between it and the other astringents that behave in the same way. The alumnol precipitate is soluble and redissolves in an excess of the albumin and gelatin, and the drug would thus theoretically possess penetrating and solvent powers far beyond those of the ordinary remedies of its class. In a fluid medium, such as pus, and especially where pus is compelled to flow out through narrow channels, it would seem to be especially valuable.

Heinz and Liebrecht have made an extended series of experiments to determine the properties of the new drug,* both in the laboratory and in practice. Its antiseptic action was not found to be very marked. Cultures of *Bacillus anthracis*, *Micrococcus prodigiosus*, etc., survived in it for over twenty-four hours. It did, however, prevent their further growth; 0.01-per-cent. solutions hindered the development of the organisms of cholera, typhus, anthrax, pneumonia, and others, while 0.04-per-cent. solutions stopped all further growth. The astringent action, on the other hand, was very marked. As dilute a solution as one of 0.0025 per cent. produced vascular contraction in the mesentery of the frog, and the reaction became very marked when strengths of 0.01 per cent. and over were reached. The exudation of leucocytes in the vessels of the inflamed mesentery was very markedly diminished or completely stopped by the application of a solution of less than 0.01 per cent. Irritation was observed when the strengths of the solutions reached five per cent., but even with ten-per-cent. solutions no corrosive action was observed.

The diffusibility of the drug was shown by the following experiment: A quantity of a five-per-cent. nitrate-of-silver solution was injected into the right femoral muscles of a healthy rabbit, and the same quantity of an equally strong alumnol solution was injected into the left muscles. When the muscles were removed later, the site of the silver injection was found surrounded by a dense mass of coagulated albumin, and no silver could be found in the direct vicinity. The alumnol had apparently caused no irritation, and in the tissues for half an inch around the site of the puncture the alumnol ferric-chloride reaction could be distinctly obtained.

As regards the action of the drug on the healthy animal and human organism, experiments on rabbits showed that strong solutions (ten to twenty per cent.) caused violent irritation and diarrhoea, but were not corrosive. Death occurred in a few rabbits, but only when the dose injected was very large and frequently repeated. Even hypodermically it required seventy-three grains daily for a number of days in succession to cause death. Sections showed that death was caused by disease of the kidneys evidently due to the aluminium in alumnol. The doses requisite for these ill effects were so large, and the conditions needed so favor-

able, that there is no danger in its use in the human subject in any of the ordinary ways. In point of fact, Heinz and Liebrecht gave the drug internally to several hundred human subjects for long periods, and in larger doses. No unpleasant effect was observed, the urine was unchanged, and more especially contained no aluminium.

Therapeutically, the discoverers used alumnol in gynaecological, surgical, and dermatological cases for a period of more than twelve months. Its action as an astringent and antiseptic was very satisfactory, but it was in its use in diseases of the skin and as an antagonist to the gonococcus that it is of most interest to us. It was found useful in inflammation of the skin, both of the superficial and the chronic infiltrated varieties. Its miscibility with water and the readiness with which ointments, varnishes, paints, and plasters could be made with it, rendered it very desirable in these cases. In the chronic cases a ten to fifty per cent. preparation was employed; in the acute ones a two and a half to five per cent. one was found best.

Chotzen* has used it in over three hundred cases of skin and venereal diseases, and with the best results. He employed it pure, as a ten to twenty per cent. powder with talc and amyllum, as a one to ten per cent. solution in water or alcohol, as a two and a half to ten per cent. lanolin salve, and as a varnish with various proportions of collodion, traumaticin, etc. His results in the most varied skin diseases—in chancroid, urethritis, elytritis, etc.—were so good that it seemed desirable to make further experiments in the same direction. During the months of April and May of this year the remedy was employed in over sixty cases of dermatological, surgical, and venereal nature in the German West Side Dispensary.

Alumnol was used in the following manner:

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| 1. Alumnol Powder No. 1, 12 per cent. | R Alumnol, 20 grs.;
Amylum, 2.3 drms.;
Talcum, 2.3 drms. |
| 2. Alumnol Powder No. 2, 25 per cent. | R Alumnol, 3.2 drms.;
Amylum, 3.2 drms.;
Talcum, 3.2 drms. |
| 3. Alumnol Collodion No. 1. | R Alumnol, 4 pts.;
Oleum ricini, 5 pts.;
Collodion, 40 pts. |
| 4. Alumnol Collodion No. 2. | R Alumnol, 2 pts.;
Oleum ricini, 6 pts.;
Collodion, 40 pts. |
| 5. Alumnol Ointment No. 1, 1 per cent. | R Alumnol, 3.2 drms.;
Adeps, 8 ozs. |
| 6. Alumnol Ointment No. 2, 5 per cent. | R Alumnol, 3.4 drms.;
Adeps, 8 ozs. |
| 7. Alumnol Ointment No. 3, 12.5 p. c. | R Alumnol, 1 oz.;
Adeps, 8 ozs. |

The remedy thus used gave results that were in some cases extremely satisfactory and even brilliant. In others,

* H. Heinz and A. Liebrecht. Alumnol, a New Astringent and Antiseptic. *Berl. kl. Woch.*, No. 46, 1892.

* Martin Chotzen. Alumnol, neues Mittel gegen Hautkrankheiten und Gonorrhoe. *Berl. kl. Woch.*, No. 48, 1892.

again, its effect was only moderately good, and in a few cases was unable to record any success at all. The following were the results obtained:

I. *Acute Inflammations of the Skin, Vesicular, Impetiginous, and Diffuse Eczemas of the Face, Head, Extremities, and General Surface.*—Eleven cases in all were treated solely with alumnol, generally in the form of the collodion coating.

1. Vesicular eczema of the cheeks; female, aged two years, four weeks' standing. Ung. A. No. 1. Complete cure in less than a week.

2. Eczema of fingers, six weeks old, in female aged fifty-four years. A. collodion No. 2. Cured in nine days.

3. Eczema of the hands and fingers; female, aged twenty-four years; from dyestuffs. Improved under A. collodion No. 2, but withdrew from treatment after a few days.

4. Eczema cruris, two months' standing; female, aged twenty-three years. A. collodion No. 2. Has been [two weeks under treatment and is much better. Is still under observation.

5. Eczema of cheeks in child aged four years. A. collodion No. 2. Patches did splendidly under coating, no new vesicles formed, and the exudation of serum stopped. Impossible, however, to prevent the child from tearing the coating off. Discharged almost well after a month's treatment.

6. Recurrent vesicular eczema of the face and arms. This was a most obstinate case, occurring in a girl aged nineteen years. The most varied treatment, persisted in for months, produced only slight amelioration, to be immediately followed by a fresh outbreak. The first permanent improvement occurred when the entire face and arms were covered with a thick coat of alumnol collodion No. 1. The change was striking and, although a considerable amount of serum would accumulate at times under the coating, forming large blebs, the skin underneath was always improved, less red and angry. She was under this treatment during May and April and is now practically cured.

7. Recurrent eczema of the hands. Another obstinate case. Discharged cured after two weeks' continuous application of Ung. alumnol No. 1.

8. Eczema of upper lip in child eight months old. Ung. alumnol No. 1. Cured in five days.

9. Impetiginous eczema of the ears; boy, aged nine years. Ung. alumnol No. 1. Was much improved after a week's treatment; was then lost sight of.

10. Eczema of cheeks; child, aged three years. Returned once only; improved.

11. Eczema of cheeks; girl, aged six years. Ung. A. No. 1. Rapidly cured.

12. Eczema of face; boy, aged two years. A. Collodion No. 1. Was seen once—ten days after an application—improved.

13. Papular eczema of the trunk; child, aged five months. Ung. A. No. 1. Improved under treatment.

14. Acute general papulo-vesicular eczema of head and body; female, aged eleven months. Ung. A. No. 1. Application seemed to irritate at first, but was soon well borne; at the end of two weeks much improved, redness nearly gone, scaling. Patient was then withdrawn from observation.

15. Acute papulo-vesicular eczema of the face; female, aged forty-five years. Potatrix. Ung. A. No. 1. Did not do well in this case; the patient neglected herself, and probably did not attend to treatment.

16. Eczema nuchæ; no trace of pediculi; boy, aged eight years. Ung. A. No. 1. Prompt improvement. Cured in two weeks.

The general results in these sixteen cases of acute catarrhal inflammation of the skin were therefore very satisfactory. They were partly due, of course, to the protection afforded to the inflamed surface by the ointment and collodion covering, and partly also to the fact that most of the cases were in young individuals and of short standing. Any occlusive dressing does good in these cases. But some of the cases, especially Nos. 6 and 7, were very obstinate ones, in which a great many other methods of treatment had been tried without avail. There were hardly any symptoms of irritation observed due to the preparations of the strength used; in fact, the very slight astringency seemed to have a soothing effect. I should consider alumnol as superior to zinc and bismuth in these cases, as being more uniform in results and more generally applicable.

II. *Chronic Inflammations of the Skin, Squamous and Indurated and Seborrhæal Eczemas.*—17. Eczema of the fingers, eight years' standing; female, aged fifty years. Great thickening and itching. A. collodion No. 2. Improved rapidly under the continuous dressing. In two weeks is noted as nearly well. She then withdrew from observation.

18. General eczema of trunk and face; girl, aged eight years. Has had it in varying degrees since birth continuously. Ung. A. No. 2. The result was a brilliant one. After a short period of treatment the child's body was better, the mother says, than it had been for years. Patient is still under treatment.

19. Chronic eczema of both cheeks; boy, aged four years. Eruption present several months. A. collodion No. 2. The redness and thickening grew less and the patches improved markedly, but it was found impossible to prevent the boy from tearing off the collodion coating. Twice in the three weeks that he was under treatment the patches had almost entirely disappeared. Discharged improved.

20. Eczema of entire face; child, aged eighteen months. Very obstinate case of several months' duration. Was improving a little under Ung. A. No. 2, when an attack of bronchopneumonia caused him to be transferred to the children's class and away from my observation.

21. Chronic eczema of toes and dorsum of feet; female, aged fifty years; has lasted all winter. A. collodion No. 2. Patient remarks the prompt disappearance of the itching. Application every other day so far improved the patient that in two weeks, when she withdrew from observation, she was nearly well.

22. Eczema seborrhœicum of the nose; female, aged thirty-three years. Marked improvement under Ung. A. No. 2, but the redness and scaling reappeared when the treatment was discontinued.

23. Eczema and phtheiriasis of the head; girl, aged twelve years; hair matted together by dense crusts, under which pus had accumulated and ulceration occurred. Considerable loss of tissue under some of the crusts; one ulceration on the vertex measures at least one by two inches. The ulcerated areas were dressed with Pulv. A. No. 2, and Ung. A. No. 1 was applied to the rest of the head after the crusts had been as far as possible removed. Treatment was of long duration, for the case was a very bad one and the child was very refractory as regarded the removal of the impetiginous crusts. In six weeks, however, the scalp was clean, the parasites, nits, and consequent inflammation had disappeared, and the ulcerated spots had entirely healed.

24. Chronic eczema of the backs and forearms of the hands;

male, aged twenty-nine years; much thickening and scaling. Ung. A. No. 3 was used continuously on the parts with satisfactory results. The patient was discharged cured at the end of a month.

25. Eczema of the legs; male, aged forty years. The eruption has been present off and on for some years. Ung. A. No. 3. The patient was under observation for a week only, during which time there was considerable improvement in his disease.

Nine cases of chronic eczema were therefore treated with results that, when the patient submitted to the treatment prescribed, were uniformly good. No absolute failures, and no irritation was remarked, even when a fifteen-per-cent. ointment was used. I should not hesitate in obstinate cases to use a twenty-five or thirty-per-cent. ointment.

III. Syphilitic Inflammations of the Skin, Superficial and Deep-seated; Gummata of the Skin and Subcutaneous Tissue.—

26. Large tertiary ulcerative syphiloderma of the skin of both knees; female, aged twenty-eight years. Pulv. A. No. 3 at her visits on alternate days, and Ung. A. No. 3 to use between times. Patient complained somewhat of burning from the powder, and for the first ten days of treatment there was no improvement, but rather a slight extension of the ulcerative process. Then for a time there was some improvement, but after a month it was doubtful if any progress had been made, and the patient was put on internal and specific treatment. Under that she is now far progressed toward cure.

27. Tertiary tubercular syphiloderma of the sole of the foot; female, aged twenty-one years; a year's standing and intractable. The constant application of Ung. A. No. 3 caused no appreciable change in her condition, and she was finally put on the ordinary treatment.

28. Ulcerative syphiloderma of the right knee, two by three inches in size, and four months' standing; female, aged twenty-six years. Dressed daily with Pulv. A. No. 1. Some progress toward healing was made during the three weeks that the treatment was continued, but it was not satisfactory and was changed to the mixed treatment and mitigated mercurial ointment.

29. Tertiary ulcerative syphiloderma of right popliteal space; male, aged sixty-five years. Daily dressings of Pulv. A. No. 2. After two weeks' treatment with slight improvement he was changed to "mixed treatment" with calomel locally.

30. Cutaneous and subcutaneous gummata of upper third of left leg. The cutaneous gumma only was present, with a large central semi-detached slough, when the patient first applied for treatment at the dispensary. Powder A. No. 1 was applied daily, with considerable improvement; the central slough was gradually detached, and the ulcerated area diminished in size, but in ten days another more deeply seated and very painful mass appeared just to one side of the original ulcer, and it was soon evident that another gumma was forming in the deeper tissues. The patient was sent to the Lebanon Hospital, where the softened deep gumma opened into the superficial ulceration. Iodoform gauze packings with bichloride of mercury, one-per-cent. injections, and the iodide of potassium internally, were then resorted to, with the result of a slow but steady cure.

31. Tertiary papular ulceration of both legs; female, colored, aged twenty years. Ointment A. No. 3 was given to the patient; the results were fairly satisfactory, but she soon began to neglect the dressings, and powder A. No. 1 was applied daily at the dispensary. My last notes after three weeks' treatment show only improvement.

32. Tertiary gummatous ulcerations of the skin and subcutaneous tissue, syphilitic orchitis; male, aged thirty-three years; body all scarred with mementoes of the disease. He had been under my treatment a number of times during the last three years, with fair results, when he was sufficiently inconvenienced to attend to himself. Ointment A. No. 2. The testicular inflammation naturally progressed, though the cutaneous sores improved; but the patient himself remarked that the improvement was much less rapid than in former times. After one month he was put on mixed treatment internally also.

33. Ulcerating gumma of skin over sacrum; male, aged thirty-nine years. Ointment A. No. 3. No improvement was noted, and the patient was finally put on the biniodide mixture.

34. Condylomata ani; female, aged thirty-three years. This disappeared entirely after fifteen days' application of ointment A. No. 2.

In nine cases, then, of ulcerative tertiary syphilitic disease of the skin the results were not good. The moderate improvement noted in two or three cases might have been due to other causes, and would probably have been seen if any other application had been used. Case 34 was cured. In these affections, therefore, alumnol is not to be recommended, especially when we compare its results with those obtained from iodoform, calomel, etc.

IV. Deep-seated or Parenchymatous and Traumatic and Infectious Inflammation of the Skin.—

35. Parenchymatous dermatitis and ulcer; female, aged forty. Ulceration was formerly present, but now there is only the inflammation with redness, thickening, and some scaling. Ointment A. No. 1. Notes show improvement for some two weeks, when the patient withdrew from treatment.

36. Dermatitis ambustionis bullosa; male, aged nine months. Burn of moderate size on arm. Ointment A. No. 1. Progressive improvement, but no more rapid than under any other very slightly astringent and protective application.

37. Traumatic dermatitis of foot; female, aged fifty-four years. Coll. A. No. 1. Made very good progress. The scales were detached and the ulcerations healed under daily applications of the paint. Cured in five weeks.

38. Parenchymatous dermatitis ani, ulcer; female, aged fifty-four years. Disease of twenty years' standing. Powder A. No. 2 to sore, and ointment A. No. 2 to surrounding inflammation. There was considerable irritation from the powder, the leg swelled up, the inflammation increased, and the patient's condition became worse. The powder was evidently too strong, and the treatment was changed.

39. Dermatitis ambustionis bullosa; infant of nine months. Burn occurred two weeks ago. Circular patch on arm two inches in diameter; sluggish granulations. Ointment A. No. 1. Healed in five days.

40. Traumatic dermatitis; male, aged thirty-five years. Hurt leg a week ago, and since then the sore has been spreading. Thoroughly cleansed and disinfected. Ointment A. No. 9. Prompt healing.

41. Bullous dermatitis of chest; blistered seven days ago with a mustard plaster that remained on over night. Male, aged fifty-five years. Healed readily under ointment A. No. 1.

42. Parenchymatous dermatitis of leg. Ulcer two by four inches, one year's standing. Ointment A. No. 2 and bandage. Patient improved, but withdrew from treatment.

43. Infectious dermatitis of finger. Male, aged thirty-seven years. Ointment A. No. 1. Steady progress to cure.

In these nine cases of deeper inflammations of the skin the effect of the alumnol was on the whole a very satisfac-

tory one. Some cases did not improve more rapidly than they would probably have done under other treatment, and one (No. 37) became worse, the application being undoubtedly too irritating. The combination of astringent and antiseptic properties renders the remedy of value in cases where sluggish granulations and adherent necrotic tissue interfere with the healing of the ulcerations.

V. *Parasitic and Contagious Diseases of the Skin*.—44. Trichophytosis capitis; male, aged nine years. Coll. A. No. 1. Was under treatment for a long time, with some apparent improvement but no pronounced result.

45. Trichophytosis corporis; male, aged twenty-three years. Treatment and results the same as in No. 42.

46. Trichophytosis corporis; female, aged fifty-four years. Ointment A. No. 2. Cured in one week.

47. Scabies; male, aged twenty-seven years. Ointment A. No. 2. Improved but did not cure him.

48. Impetigo contagiosa; female, aged nine years. Coll. A. No. 2 effected a prompt cure.

49. Impetigo contagiosa; female, aged fourteen years. Treatment and results the same as No. 48.

50. Erysipelas faciei; male, aged forty-five years. Coll. A. No. 2; excellent result. The inflamed area promptly paled under the coating, and the spreading of the disease was prevented. It had already traveled twice over the entire face and head. Cured in one week.

51. Impetigo contagiosa and eczema intertrigo of the nates. Ointment A. No. 2. Female, aged one year. Cured in one week.

In the eight cases of parasitic and contagious diseases of the skin the result was not marked. Scabies and ringworm behaved about as they did to other similar remedies—certain cases did well, and others remained entirely unaffected.

VI. *Glandular and Vascular Diseases*.—52. Rosacea; female, aged twenty-two years. Improved considerably under ointment A. No. 1.

53. Acne vulgaris of several months' standing; male, aged fifty-three years. It began as an iodic acne, but persists now two months after he has ceased to take drugs. After one vigorous curetting he was put on ointment A. No. 1 with excellent results. Discharged cured in two weeks.

54. Large submaxillary abscess; female, aged thirteen months. Opened, washed out with peroxide of hydrogen, and dressed with powder A. No. 1. Prompt healing.

55. Acne vulgaris; female, aged thirty-five years. Chronic case. Curetting and ointment A. No. 2. Cure.

56. Rosacea; female, aged forty years. Great improvement under ointment A. No. 1.

57. Acne; female, aged twenty-two years. Ointment A. No. 2. Improved under treatment, but was lost sight of.

58. Congenital hyperkeratosis of the entire body. Chronic eczema of trunk, face, etc. Acid. arseniosi, one fiftieth of a grain t. i. d., and ointment A. No. 1. Excellent result on the eczema and improvement of the keratosis after three weeks' treatment.

In these seven cases there were no failures; several were cured and the rest were at least improved.

VII. *Gonorrhea*.—59. Male, aged thirty years. Disease of six days' standing. Alummol, four-per-cent. solution, 3 ij, to water, 3vj. It had no effect on the disease in two weeks and was discontinued.

60. Male, aged thirty-six years. Disease six weeks old. Alummol, 3 ss. to water 3vj. Patient improved under treatment. The discharge became quite watery, but he was lost sight of.

The number of cases of gonorrhœa were not sufficient to draw any conclusion from, but I think the drug deserves trial in chronic cases. It will probably be found about as efficacious and reliable as the other remedies used, or as unreliable. The truth probably lies midway between Chotzen's eulogies and Caspar's report of its uselessness.

Although the foregoing report is based upon a comparatively small number of cases, the experience has been sufficient to establish in my mind the conviction that in alummol we possess a remedy of permanent value in a number of diseased conditions. It is an astringent which is at the same time antiseptic and non-irritating. In its pure condition it might prove irritant, and in one of the cases recorded above it was undoubtedly used in too great concentration, but under ordinary medicinal conditions it has never caused the least pain or trouble. Over nitrate of sodium it possesses the advantage of not forming an insoluble albuminate to stop the further action of the remedy, nor does it stain the clothes. In all inflammatory skin diseases, even the most acute, it deserves a trial. In the chronic form it holds its own with any of the older remedies. In the parasitic diseases it does not seem to possess any marked advantage over other drugs. It succeeds in some and fails in others, as they do. In the syphiloderma its action was not satisfactory. The gonococcus apparently survives in its presence. It possesses some marked advantages over the permanganate of zinc and other older astringent antiseptics in its non-irritating nature.

25 WEST FIFTY-THIRD STREET.

A NEW METHOD OF AIDING IN THE ATROPHY OF UTERINE MYOMA WITHOUT REMOVAL.

By F. BYRON ROBINSON, B.S., M.D.,
CHICAGO.

TWELVE months ago a lady about forty-four years old came to me for severe uterine hemorrhage. On examination, I found a large uterine myoma—as large as a man's double fists. No benefit was gained from hot douches, ergot, and as much rest as she could take under her circumstances. I used electricity, but no appreciable benefit resulted. At the end of two months' treatment she was worse off than ever. She went into the Woman's Hospital in my service. The examinations *per vaginam* revealed much solid exudate and tenderness in the pelvis. A laparotomy on her brought to light such dense and extensive adhesions that it was deemed unsafe to attempt to remove the uterus or tubes and ovaries. In this case I determined to adopt a new plan of procedure. I first tied both tubes at their junction with the uterus with a No. 14 silk ligature, using a long curved needle with an eye in the end. This ligature would destroy the functions of the tubes forever and stop blood from that direction coming to the uterus. The uterus was very large and, set in old solid exudates like a turnip in frozen mud and it was feared that even after the tubes were ligated and functionless

(though not removed) the blood supply was great enough to contain the hemorrhage. So I adopted the plan of ligating the uterine artery for a half or more of its way down the body of the uterus. Two silk ligatures were applied to the uterine artery as it ascends along the body of the uterus.

As the uterine artery ascends along the body of the uterus to meet the ovarian at the junction of the tube and uterus, it is tortuous and hugs tightly the uterine body; but one can easily push the needle between it and the body of the uterus and thus ligate it. In some of the fibroid tumors the uterine artery along the body of the uterus enlarges and beats with a tremendous force. Now, this heavy throbbing of the artery is what induces one to attempt to arrest its action, for it does seem that if such a torrent of blood is checked the uterus would not be fed so well.

In my case nearly two thirds of the way down the uterus the artery received ligatures. The abdomen was closed and the lady recovered. To my great astonishment, the uterus had shrunk to about half its original size in three months. Her profuse hemorrhages stopped and she gained flesh rapidly. Six months after, she was well and the uterus had gone down more than half its original size and felt much more normal in size and shape. Then she appeared perfectly well. Since that time I have done the operation once more, but it is too soon to announce any results.

This new method of operating for uterine myoma consists—1. In ligating the ovarian artery with or without tubal and ovarian removal. 2. In ligating the uterine artery which courses along the sides of the body of the uterus for a half or two thirds its length from the fundus to the cervix. The object is to induce uterine atrophy and avoid the danger of removal of uterine myoma. The mortality of abdominal hysterectomy for uterine myoma is still very high in the most skilled hands and appalling in the hands of amateur operators. In this operation the mortality over tubal removal will scarcely be increased by the additional time and manipulation necessary to ligate the uterine artery coursing along the body of the uterus. I used a well-curved aneurysm needle in performing the operation, thus avoiding the sharp-pointed needle, which might lacerate the vein or artery. One can put the finger and thumb on the artery and feel it beat close to the uterus. A glance at the ever-memorable Hyrtl's representation of the uterine circulation will easily show how the operation can be performed. If it be found difficult to secure the corporeal uterine artery in an aneurysm needle, a long, sharp, curved handled needle could be employed, which could be pushed through a part of the uterine substance, if required, to be doubly sure. It is a curious feature that uterine myomata seem to have a very feeble vitality, and by a slight shock or a slight change of blood in some other direction a myoma will frequently shrink. If a uterine myoma can be made to shrink by a simpler operation than abdominal hysterectomy, the woman is saved from considerable danger and the mutilating loss of an organ. Sweeping removals of organs is a backward movement in the art of surgery. This operation will not suit all fibroids, but it seems to me to be a distinct addition to the operation of the removal of the appendages for "bleeding fibroids" given

to us by Battey, Tait, and Hegar. This operation is entirely original with me, as I have not observed any note on the idea in literature.

34 WASHINGTON STREET.

AN ENORMOUS CEREBRAL TUMOR.

By WILLIAM E. CONROY, A. M., M. D.,

SAGINAW, MICH.

THE phenomenal size of the encephalic tumor here described renders the case, I think, worthy of record, although I am unable to report it as accurately as I could wish, having, unfortunately, lost my notes. The main features of the case, however, are these:

F. H., aged twenty years, American by birth and parentage, came to my office accompanied by his mother, who requested me to examine his eyes, saying that his vision had been failing for about two years. I obtained the following history: F. was an unusually bright boy until his fourteenth year, when he was knocked down and kicked in the head by a horse. The blow rendered him for a short time unconscious, but he apparently recovered completely. Soon after, however, it was noticed that he was gradually losing his hearing. The deafness increased slowly, and, about a year after the accident, paralysis of the right arm and leg developed. Next his speech became affected, and finally his eyesight began to fail. The mother also thought that for the last few years the boy's head had been increasing in size.

Status Præsens.—Height, five feet five inches and a half. Body well nourished, muscles well developed, and plenty of adipose. Measurements of arms and legs of right and left sides show no marked difference. Facial expression rather dull. Tongue protrudes to the left. Sensation blunted over entire right side, right arm and leg, most marked in leg. Paralysis of motion nearly complete in right lower extremity; right arm and hand much weaker than left. Electrical reactions not taken. Head square, of hydrocephalic type; circumference at level of frontal eminence thirty-three inches. *Ears.*—Tympanic membranes normal in appearance; no ankylosis of incostapedial joints. Eustachian tubes patulous. Hears only the loudest sounds, there being apparently no difference in hearing capacity between right and left ears. *Eyes.*—External structures normal. Pupils dilated, the left rather larger than the right, and do not react either to light or to efforts at accommodation. A very marked neuroretinitis in both eyes, that of the left advancing to the atrophic stage. No heterophoria. Vision in the right eye is reduced to recognition of No. L Snellen at a few inches from the eye. With the left eye he can only count fingers at about a foot distant.

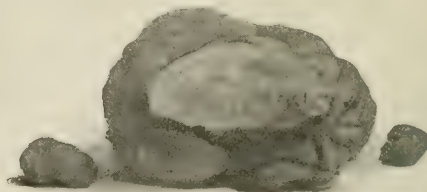
Articulation very indistinct. There is a depression in the skull at about the location of the left parietal foramen, but no cicatrix. Pressure over this spot causes pain. The mother states that the boy's appetite is enormous, and that he sleeps well. I think she told me that he had suffered from several convulsive seizures, during which he lost consciousness, but that he did not foam at the mouth or bite his tongue. There are no scars on the tongue. I made a diagnosis of cerebral tumor, probably in the occipito parietal region. This was in August, 1889. I did not see the boy again until the following January, when I was asked to consult with the late Dr. B. B. Ross, of Saginaw, as to the propriety of an operation. The only change that had occurred was that both optic nerves were now markedly atrophied and vision was reduced to perception of a hand placed between

the eyes and a bright light. Dr. Ross agreed with the diagnosis of tumor, and after explaining to the mother the certainty of a fatal issue if the case was left to Nature and the danger of operation, with the extremely slight chance of benefit therefrom, she requested us to operate. Accordingly, on the 2d of February, 1889, Dr. Ross trephined, assisted by Dr. Barber, Dr. Sawyer, Dr. Schemm, the writer, and others. The operation was performed under strict antiseptic precautions, a curved incision being made with its center close to the depression in the skull before mentioned. This depression proved to be an opening in the bone, apparently caused by absorption, the surrounding bone being very thin. About two square inches were removed with trephine and bone forceps, when the dura bulged through the opening very dark, almost black in color. Incision of the dura revealed a hard, lobulated mass, looking very like brain tissue. Trying to pass the finger around the mass showed that it was so extensive that removal was out of the question, though nobody present imagined that it was nearly as large as it afterward proved to be. A small piece was therefore cut off for examination and the wound closed, a drainage-tube inserted, and an antiseptic dressing applied. The shock of the operation was severe, but the patient rallied for a time, and for twenty-four hours seemed to be doing well. On the second day, however, the heart's action began to fail, and death ensued painlessly forty-eight hours after the operation.

Autopsy, twelve hours after death, by Dr. Sawyer. Present, Dr. Ross, Dr. Conroy, Dr. Schemm, and others. Only the encephalon was examined. On removal of the calvaria the entire left half of the cavity seemed to be filled with the tumor, the surface of which resembled very strongly a normal hemisphere, being lobulated and fissured in such a manner that a superficial glance detected but little difference between it and the right hemisphere, which was macroscopically absolutely normal. The tumor was invested with a closely adhering tough fibrous membrane, which sprang from the falx cerebri. There were no other attachments. On dividing this attachment and lifting the enormous mass out of the cavity the left hemisphere was seen lying on the base of the skull, flattened and compressed to the size and shape of the palm of a man's hand. Removing this and the right hemisphere, two smaller tumors were found on either side of the foramen magnum, attached to the dura of the medulla oblongata. The main tumor weighed *one pound eleven ounces* avoirdupois. Its long diameter (antero-posterior) was *eight inches*, transverse diameter *three inches and a half*, and from surface to base *four inches*. Of the smaller tumors, one was of about the size of a plum, the other rather smaller. All three tumors were of very firm consistence and seemed homogeneous throughout. Several sections were made and examined microscopically by Dr. George C. Chase. They proved to be composed of pure fibrous tissue, with here and there a spot where the tumor was undergoing fatty degeneration.

I have reported this case at length from memory on account of the immense size of the tumor—the largest intracranial neoplasm, I believe, on record—and because it affords an almost unique example of what the system will sometimes endure without collapse. Here was a young man with practically but half a brain, and that half pressed upon by its pathological neighbor, yet with heart and lungs perfectly normal, assimilation and excretion going on without interruption, and with even the mental faculties not seriously impaired; for the boy was intelligent, expressed himself well, but for the mechanical difficulty of speech, and, until his sight failed, read much and with enjoyment.

How long he would have lived but for the unfortunate operation it is impossible to say, but there was no sign of vital failure up to that time, notwithstanding the pressure upon the origins of all the left cranial nerves, including the pneumogastric. I send herewith a photograph of the tumors reduced about one third.



To the best of my recollection, we found no abnormality in the cerebellum, pons, or medulla. I can not state from memory the details of the examination of the compressed hemisphere. Potassium iodide was given in large doses without result.

LAPAROTOMY FOR THE REMOVAL OF A PYOSALPINX FOLLOWED BY A FÆCAL FISTULA.

By JOHN R. HINKSON, M. D.,
SURGEON TO THE ASTORIA HOSPITAL, LONG ISLAND CITY, N. Y.

Mrs. S., aged twenty-two, was operated on by the writer for the removal of a pyosalpinx affecting the right tube, which was adherent to the bladder, vermiform appendix, small intestines, and omentum, on May 3, 1891. She made a good recovery from this operation, except for the occurrence of a sinus in the inferior apex of the wound.

Six months after this date she complained of a great pain in the left iliac region which was aggravated by the occurrence of menstruation; and, on bimanual examination, a tumor was discovered to the left side of the uterus in which fluctuation could be plainly detected. She was believed to have another pyosalpinx, and was advised to have an operation performed, to which she readily consented.

The operation was performed, as in the former case, at the patient's residence on January 3, 1892. It was feared, on account of the adhesions met with in the first operation, that the removal of this tumor might prove extremely hazardous; but on making an incision in the median line of the abdomen and exploring with the hand in the peritoneal cavity, the tumor—which was the size of an orange—was found to be entirely free from adhesions, and was removed with little difficulty in connection with the ovary, which latter contained several small abscesses. The sinus was then slit up on a grooved director and thoroughly curetted. This being done, the abdomen was closed with interrupted sutures of silver wire and a drainage-tube inserted in the middle of the wound.

The dressing was composed of iodoform and corrosive-sublimate gauze, over which was applied a layer of absorbent cotton.

The patient vomited considerably for five days, but suffered little pain. The temperature and pulse remained approximately normal till the third day following the operation, when the

pulse rose to 120 and the temperature to 100° 2'. For the first three days nutrient enemata were administered.

January 6th.—Pulse, 100; temperature, 99°; dressing changed; drainage-tube removed; no appearance of suppuration; bowels moved by enema.

8th.—Pulse, 102; temperature, 101°; dressing changed; bowels moved by enema. On January 9th meat was allowed.

11th.—Pulse, 80; temperature, 99° 5'; dressing changed and sutures removed.

18th.—Pulse, 100; temperature, 102°; dressing changed; suppuration at lower extremity of the wound; irrigation with hydrogen peroxide.

20th.—Pulse, 88; temperature, 101°; suppuration on the right side of the insertion of the lower stitch holes.

25th.—Pulse, 73; temperature, 98° 6'; dressing changed; wound apparently healed; bowels moved naturally.

On February 1st a sinus was discovered at the site of drainage and at the inferior extremity of the wound corresponding to the opening of the former sinus. The patient was not permitted to leave her bed for a month after the operation. The sinuses occasioned little inconvenience except for a gurgling she complained of in the inferior one. Carbolic acid was first applied, but without effect. The sinuses were then dilated with laminaria tents and curetted, nitrate of silver being afterward applied.

The superior sinus had healed on July 20th, but the inferior one was in the same state, the patient complaining occasionally of a sensation like the passage of wind.

On August 1st the patient, being constipated, gave herself an enema; and when she had injected about half a pint the water was ejected with considerable force through the sinus, being followed by fecal matter.

The writer considered the above-mentioned occurrence as positive evidence of the existence of a fecal fistula; but as the external opening was very small, being about sufficient to admit an ordinary probe, a radical operation was not considered advisable, and the only treatment employed was the application of a pad of antiseptic gauze strapped on tightly with strips of adhesive plaster.

On May 3, 1893, being two years after the first and one year and five months after the second operation, the fistula was found to be closed.

At this writing, September 22, 1893, the patient is in excellent physical condition; she has increased considerably in weight and is entirely free from pain or any uncomfortable feeling.

The Clinical Society of the New York Post-graduate Medical School and Hospital.—The next meeting will take place in the amphitheatre of the school, No. 226 East Twentieth Street, this (Saturday) evening at 8.30. A paper entitled *Modern Methods of Research in Medicine and Surgery* will be read by Dr. Otto G. T. Kiliani. The members of the profession are invited to be present and participate in the discussion.

A New Hospital in San Francisco.—It is announced that Dr. Levi C. Lane, of San Francisco, has caused a large hospital to be built at his own expense, for use in connection with the Cooper Medical College.

Changes of Address.—Dr. Joseph Collins, to No. 43 West Thirty-ninth Street; Dr. Everett M. Culver, to No. 36 West Thirty-fifth Street; Dr. Charles S. Fischer, Jr., to No. 201 West One-hundred-and-eighteenth Street; Dr. Allan McLane Hamilton, to No. 44 East Twenty-ninth Street; Dr. Irving S. Haynes, to No. 181 East Eighth-sixth Street; Dr. Carl Koller, to No. 715 Madison Avenue.

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THE MEDICAL SERVICE OF THE NAVY.

The *Brooklyn Daily Eagle* says of the man-of-war New York that her accommodations for the sick and wounded are "grotesquely inadequate," and that the hospital is so situated that its inmates must be subjected to most disturbing and irritating noises incident to the working of the ship. The same paper says:

"The bureau of medicine and surgery of the navy can not possibly approve of such a condition of things. If it is aware of them, it must, from the commonest premises of science and of decency, have protested against them. If its protest has been ignored, the shame for that fact must be due to the absence of any representative of the medical department of the navy from the board whose authority in the construction of vessels of war is final.

"There is plenty of room in the New York for large and decent hospital accommodations. Either further back on the same deck, or, better yet, further back on the gun deck above, plenty of room can be found. If the chief of the bureau of construction can not find such room, the *Eagle* can send a reporter along with him who will show him where plenty of such room can be found in the ship, without even sacrificing the comforts or the luxuries of any person on board, including the boudoirs of the petty officers or of the 'secretaries,' 'writers,' or scribes of officers higher in rank on this floating palace of strength and beauty.

"The attention of the medical men of these two cities of all schools of practice is called to this abuse. Medical journals are respectfully and urgently asked to investigate it and to agitate for its reform. A private interest that sent a ship as large as the New York to sea with hospital accommodations so inadequate and so surrounded with factors of noise, which to the sick is torture, would be prosecuted under the law of any country. Our own Government, the fountain of law, is in this instance a violator of the laws of humanity and will be impeached by public opinion and by the love of mankind for mercy and for justice, if this abuse is not rectified.

"There is plenty of time in which to rectify it. The ship will be here for quite a while. If sent abroad with this abuse unremedied, the shame of the fact and the consequent shame of the Government will be carried across the seas and around the world, wherever this magnificent vessel is visited as an example of the art and power of the United States. The time to begin [this reform] is now, and the policy and determination necessary for its accomplishment must be so resolute that sophistry and mendacious denial can not arrest it or red tape in

any form be interposed against it. The *Eagle*, from its knowledge of this wrong, would feel that it was an accomplice before the fact in the deaths and sufferings of the naval defenders of the country if we did not protest against it."

If the faults pointed out by the *Eagle* admit of remedy before the ship goes to sea, certainly the remedy should be applied. We can not afford to lag behind other nations in our appliances for the care of the sick and wounded on shipboard.

THE STATE LICENSE TO PRACTICE.

WE are indebted to the editors of the *Buffalo Medical and Surgical Journal* for advance proof-sheets of an editorial article prepared for the November number of that journal. It is entitled State Examination for License. In part it is a comment on the new Pennsylvania law, but in the main it is a statement of the practical working of the New York State law, and its accuracy is guaranteed by the fact that one of the editors of the *Journal*, Dr. William Warren Potter, of Buffalo, is a member of the board of examiners.

The writer expresses his conviction that the operation of the law during the two years that the State alone has been empowered to grant the license to practice has more than fulfilled the promises made by the advocates of the measure. "Most of the exemptions having ceased," he says, "the last academic year was a busy one for the New York State medical examiners. There were 327 candidates for license, showing that the estimate of an annual influx of 400 physicians, rather than from 600 to 700 as of old, is very near the mark. It is more than probable that the current year will demonstrate this still more clearly. Of this number, 267 succeeded in meeting all requirements and passing the medical examinations, and are now registered as practitioners of medicine by virtue of a State license. Two hundred and forty-four of these are State [society?] board men, seventeen are homœopaths, and six are eclectics."

It is shown that the revenue derived by the examiners from the fees received is inconsiderable; the statement is made that a new edition of the *Syllabus*, now in press, will be "a scientific model for the systematic study of medicine, as well as a guide for those who contemplate taking the State licensing examinations"; and the article continues as follows: "Some of the effects of the establishment of State boards of medical examiners have been improved methods of teaching, prolongation of terms of study, and the establishment of new chairs of instruction. While in New York State the entire subject of medicine is divided into seven main topics, the questions asked under these topics are so subdivided as to comprehend almost every sub-head in medicine. Realizing the importance of having their graduates well equipped for passing these tests, the means above enumerated have been adopted for the benefit of colleges and the profession. In consequence, teachers of hygiene, medical jurisprudence, and other subdivisions of medicine exist now in fact as well as in name in most of our colleges, a thorough drill and review teaching is a feature of the curriculum, and some of the lecture courses extend over a period of eight months. Under the

direction of the Committee on Legislation of the Medical Society of the State of New York, an auxiliary committee has been at work looking out for the enforcement of the law governing medical registration in every county in the State. They have done such excellent work that to-day every registration recorded since the new law went into effect is known to the society, and where correction of illegal registration has not already been made the penalty of the law will be enforced. In addition, county clerks are now conversant with the conditions regulating registration, and it is more than certain that no new name will be added to the records unless the document on which registration is demanded bears the seal of the regents."

The article concludes with very clear instructions as to the proper course for those to take whose registration does not quite fulfill the requirements of the law.

MINOR PARAGRAPHS.

AMPUTATION AT THE HIP JOINT.

In the *Annals of Surgery*, Dr. Murdoch says that, when it can be applied, Wyeth's method is the best for the temporary arrest of hæmorrhage. The method of operating known as that of Furneaux Jordan he considers the best where the nature of the case will permit of it. In this operation the thigh is amputated, as low down as the condition of disease or injury will permit, by a circular incision. An incision is then made from the top of the trochanter major downward along the femur to the circular incision; the soft parts are dissected from the bone, and disarticulation is accomplished after dividing the muscles and ligaments by strongly abducting the femur. When for any cause neither of these methods is applicable the operation should be performed by means of one of the Racket incisions and the vessels secured as they are exposed in the course of the operation. In military or railway surgery cases may occur in which it is necessary to do the operation with great rapidity. In such cases the antero-posterior flap method is the best. For the permanent arrest of the hæmorrhage torsion of the bleeding vessels is recommended as being less liable to be followed by secondary hæmorrhage, more easily applied, and, involving no foreign substance in the wound, less apt to convey infection.

THE EXCITERS OF MASTOID DISEASE IN CONNECTION WITH DISEASE OF THE MIDDLE EAR.

In a recent number of the *Zeitschrift für Ohrenheilkunde* Dr. Scheibe maintains that when an acute disease of the middle ear leads to bone disease there are present, in addition to the known anatomical causes, such as the pneumatic cells that prevent the outflow of the pus, and the patient's general condition, the following pathological ones: too small and too highly situated a perforation, which also closes too early, the proliferating growth around a central opening, and great swelling of the mucous membrane. In sixteen cases a thorough microscopical examination of the discharge showed that in fifty-six per cent. the *Diplococcus pneumonia* was found, in six cases the *Streptococcus pyogenes*, in one the *Staphylococcus*, and in one some undetermined rounded cocci without a capsule. In other investigations he has found the *Diplococcus pneumonia* present in only twenty per cent. of cases of acute middle-ear disease, so he is inclined to think that this diplococcus specially favors the spread of the disease to the adjoining bones. Dr. Scheibe

seems to have deduced his opinion from insufficient grounds. Sixteen cases can hardly be considered a sufficiently large number upon which to base an estimate of percentage.

THE PUBLIC RECOGNITION OF MEDICAL EMINENCE IN FRANCE.

In a memorial notice on Jean-Martin Charcot, published in the *Johns Hopkins Hospital Bulletin* for September, Professor Osler delicately alludes to the high public status of the physician in France as contrasted with other countries. He says: "A finely tempered individualism, prone though it be to excesses, is one of the glories of the French character. The man in France stands for more than in any other land; his worth and work are there more truly recognized, and there his relative position in the history of art, literature, or science is more justly gauged. Alone among the nations of the world, France honors duly the mighty dead of our profession. Not in the Pantheon only, but in statues, in the names of streets, and in the names of hospitals, one is constantly reminded in Paris that such men as Bichat, Laennec, Pinel, Trousseau, Broca, Bernard, and others have honorably served their day and generation. The memory of Charcot is secure in such a land, and with us, too, it will rest safely, cherished beside that of Laennec and Trousseau."

A MEDICAL LEANDER.

ACCORDING to the newspapers, Dr. Judson Daland, of Philadelphia, recently swam the Strait of Messina, known to the ancients as the whirlpool between Scylla and Charybdis. This feat is said not to have been accomplished before within the memory of the oldest inhabitant of Faro, a neighboring fishing village. Dr. Daland is reported to have said: "The entire swim was made without rest or stimulants, and I restricted myself to the breast and side stroke, not using the back at all. I encountered during the swim strong currents, running apparently in all directions, the direction changing every few moments. These currents were at times warm and at others icy cold. There was a high wind and a choppy sea, making it extremely difficult to breathe. I returned to Messina in good condition and that same evening went to the opera."

THE POSSIBILITY OF CHOLERA INFECTION BY SALTED SHEEP GUTS.

THE *Abstract of Sanitary Reports* for October 20th contains a report from Dr. Dunbar, director of the Hamburg Hygienic Institute, of an investigation of salted sheep guts from a nominally infected locality, for the purpose of discovering how long cholera vibrios were able to exist upon them. The results of the inspection showed that those guts that were infected with cholera vibrios showed evolutionary organisms after having been kept for six hours in a refrigerator, while guts kept at a temperature of 22° and 37° C. showed evolutionary forms after three hours, but not after six.

GRAPE JUICE AND WOMAN'S MILK.

THE *Lyon médical* for October 1st states that the ancients established the curative property of grape juice in certain digestive troubles, dropsies, etc. Chemical analysis, by showing a great analogy between grape juice and woman's milk, affords an explanation of the happy effects that have been demonstrated by the nropathic physicians. This may be judged by the analyses. The grape may contain microbes either when found as raisins suspended under the joists of a country house or in the

fresh fruit. Dr. Schnirer has found the tubercle bacillus in the water in which grapes taken from a basket in the streets had been washed.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 31, 1893:

DISEASES.	Week ending Oct. 24.		Week ending Oct. 31.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus.....	0	0	0	0
Typhoid fever.....	43	16	31	14
Scarlet fever.....	60	7	65	3
Cerebro-spinal meningitis.....	7	5	3	3
Measles.....	93	3	104	5
Diphtheria.....	186	40	167	46
Small-pox.....	16	3	9	1

The City (Charity) Hospital.—We learn that Dr. Robert W. Taylor, who has served on the medical board for many years with conspicuous fidelity and ability, has resigned.

The New York Academy of Medicine.—The smoking room and grill room were open on Thursday of this week to the fellows and their invited guests from noon until eleven at night.

Society Meetings for the Coming Week:

MONDAY, November 6th: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private) New York; Brooklyn Anatomical and Surgical Society (private); Utica, N. Y., Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

TUESDAY, November 7th: New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburg, N. Y., Medical Association; Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Hampden, Mass., District Medical Society (Springfield); Baltimore Academy of Medicine.

WEDNESDAY, November 8th: New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private), New York; Medical Society of the County of Albany, N. Y.; Worcester, Mass., District Medical Society (Worcester); Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society.

THURSDAY, November 9th: New York Academy of Medicine (Section in Pediatrics); New York Physicians' Mutual Aid Association (annual); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private—annual); Pathological Society of Philadelphia.

FRIDAY, November 10th: Yorkville Medical Association (private), New York; German Medical Society of Brooklyn; Brooklyn Dermatological and Genito-urinary Society (private); Medical Society of the Town of Saugerties, N. Y.

SATURDAY, November 11th: Obstetrical Society of Boston (private).

Obituaries.

ALFRED LUDLOW CARROLL, M.D.

DR. CARROLL died at his home, in New York, on Monday, October 30th, after a long illness from pulmonary tuberculosis, in the sixty-first year of his age. He was a graduate of the Medical Department of the University of the City of New York, of the class of 1855. A large part of his professional life was spent on Staten Island, but for several years past he had done a consultation practice in New York. For a number of years, up to the time it ceased to be published, he was the editor of the old *Medical Gazette* (not the subsequent publication that was evolved out of the *Hospital Gazette*), which he conducted most ably and acceptably. He was a very forcible writer and an editor of great discernment. In his later years he was an earnest student of public hygiene. He was a member of the New York County Medical Association and of the New York State Medical Association, and for several years edited the State association's *Transactions*. Dr. Carroll was an accomplished physician and a most upright and amiable man.

Proceedings of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Fifteenth Annual Congress, held in New York on Monday, Tuesday, and Wednesday, May 22, 23, and 24, 1893.

The President, Dr. MORRIS J. ASCH, of New York, in the Chair.

(Continued from page 510.)

Some Remarks on the Structure of Edematous Nasal Polypi.—Dr. JONATHAN WRIGHT, of Brooklyn, N. Y., read a paper on this subject. (See page 521.)

Dr. MULHALL: I wish to take exception to one statement made by Dr. Wright—namely, that atrophy is the result, commonly, of a preceding hypertrophy. I wish to take exception also to the generally received opinion that atrophic rhinitis is subsequent to hypertrophic rhinitis. I believe I was the first to point out, some eight or nine years ago, that atrophic rhinitis, in ninety per cent. of cases, was a disease of childhood, and was often the result of an acute inflammatory process, scarlet fever, measles, etc., resulting in acute atrophy. In Burnett's work on Diseases of the Nose and Ear he has the word *cirrhotic* in parentheses after the word *atrophic*, as though the two terms were convertible. Long-continued hypertrophy may result in cirrhosis, but not in atrophy. This rule holds good in the nose, as it does in other organs in the body. Cirrhosis of the liver is the result of a long-continued hypertrophy. Atrophic rhinitis is a disease almost *ab initio*, and is not the result of hypertrophic rhinitis.

Dr. PORCHER: I have two instruments which I wish to present to the association. The first is a recent modification of a self-retaining palate retractor, the description of which appeared in the *Medical Record* in April, 1888, and previous to that of any similar device. In its present form, being made of aluminum and the slide being without screws and catches, the action is entirely automatic and not at all clumsy. The hook is a solid band and is bent backward and divided at the end so that it does not bruise the septum while the palate is securely retracted. The slide is held in position by the pressure of the retracted palate. The second instrument is a modification of the Sajous cold-wire snare. The modification consists only of the removal of the grooved duck-bill end, so that

a simple tongue and cannula remain. This tongue, being armed with a wire loop one to two inches in diameter and the ends bent forward and drawn backward into the cannula, which effectually prevents them from slipping, the operator is enabled to use the instrument repeatedly without changing the wire. These two instruments are especially effective for the removal of all naso-pharyngeal growths, adenoids, etc. With the aid of the rhinoscopic mirror and tongue depressor the wire can be made to encircle and remove a growth in any situation with comparative ease. Messrs. Meyrowitz & Co., of this city, have made the present models.

Dr. CASSELBERRY: Concerning the microscopic examinations of nasal polyps, I think that Dr. Wright has confirmed to a large extent those facts which we have already accepted; but one feels a sense of satisfaction in having such a confirmation from a man of known reputation in this line of work.

Concerning the clinical aspects of his paper, he touched upon one point about which I have had occasion to write, and that is, the removal of the anterior end of the middle turbinated bone as a means of access to the point at which these growths most frequently take origin—namely, the hiatus semilunaris or the edge of it. I do not mean to say that all myxomata take origin here, but I have had occasion to confirm the observations of Zuckerkandl, who asserts that at least two thirds of these growths are located in the region stated, and are therefore inaccessible, practically, so long as the turbinated body remains in its usual position. I do not intend to assert that it is possible in all cases to remove the anterior end of the turbinated body in order to gain access to this region, or that it is best to do so even in the majority of cases; but I have reported some cases in which this was possible and in which no deleterious results came from it. Some of these cases were not absolutely cured, but I was able to keep the growth under control, having gained access to this particular locality.

I understand that this discussion also includes Dr. Johnston's paper, relating to a case of nasal polypus projecting into the naso-pharynx. I was very much interested in the specimens he exhibited. I have in several instances had considerable trouble in passing the wire around myxomata which grew backward in this direction. I can not recall any case in which the growth reached the size of the one shown by Dr. Johnston. In some cases I have been able to pass a cannula such as Dr. Porcher exhibited behind the velum, so as to catch the polypus from the rear; at other times I have been able to reach it with the aid of cocaine contraction after the patient had violently blown his nose, so that the growth protruded forward, thus enabling me to catch it from in front. The removal of these growths demands the greatest skill.

Dr. WRIGHT: In reply to Dr. Mulhall's statement that atrophy is not consequent to hypertrophy, I can only say that it opens a large field for discussion. My opinion regarding this matter, which may be changed by future observation, was gained from a careful microscopic examination of numerous microscopic sections of nasal growths; these investigations led me to the conclusion that in the large majority of cases atrophy is preceded by hypertrophy. The sections were not only examined in cases of polypi, but in conditions bordering upon that. There are many grades of hypertrophy. That the terms *cirrhotic* and *atrophic* are not interchangeable is, of course, admitted. In the atrophy which takes place in the fibrous structures the fibrous tissue is the last thing to disappear. But finally that atrophies also, and if you examine a number of cases, in some you will find the mucous membrane so thin that you can feel the bone directly underneath the mucous layer.

As regards Dr. Casselberry's suggestion to remove the anterior end of the middle turbinated bone, in order to gain access

to these growths, I would say that in most cases I am unable to do it. In many cases the outline of the bone gradually slopes from before backward and downward, and I know of no instrument which will enable us to remove it; no snare will grasp it. I have often found this difficulty almost insurmountable. I myself have been very unfortunate in my attempts to remove the anterior end of the middle turbinated, but perhaps Dr. Casselberry has run across a more favorable set of cases, or perhaps he has unconsciously exaggerated the number of cases in which it is possible to follow out his suggestion. Or possibly my own experience has been the exceptional one.

The size of the polypus removed by Dr. Johnston is very remarkable. I removed one a few weeks ago that existed twenty-four years, curled up in the nose. Before it was put into alcohol it measured five inches in length.

Two Cases of Nasal Tuberculosis.—Dr. JOHN W. FARLOW, of Boston, read the histories of two cases. (See page 525.)

Dr. DE BROS: I think the time has gone by when tuberculosis and lupus were regarded as different and distinct affections. Lupus is nothing but a slow form of tuberculosis. I have always believed them to be identical. The occurrence of tuberculosis in the nose, and in that organ alone, I have never met with; this is the first case I have heard of. A tuberculous process extending from the mouth to the nose is comparatively common. I have seen two or three cases myself in which the tubercular ulceration probably extended from the hard palate up into the nasal cavities. They were all of the proliferative species, and were on the septum rather than on the turbinated bones. I regret to state that I can not report the good results of treatment which Dr. Farlow has obtained. I have always seen temporary amelioration, but the last stage would be worse than the first. I have in my mind a case I saw about two months ago in which the ulceration appeared first on the septum; the growth was cauterized and lactic acid applied, but it extended to the alæ of the nose. The patient is not dead yet, but the relief she obtained from the treatment was only temporary.

Dr. WRIGHT: It seems to me that in a case like this, unsupported by the presence of the tubercle bacilli, we should have to hold the diagnosis somewhat in abeyance. In the scrapings from such a growth in the nose it is rare to find the tubercle bacilli, but if you examine a number of sections of tissue from a tuberculous mass you are sure to find the bacilli. There are a great many forms of chronic inflammation which produce giant cells. A number of cases of tuberculosis of the nose have been reported abroad. Nevertheless, without the tubercle bacilli, I think the diagnosis in the cases reported by Dr. Farlow should be held back, especially where the lesion occurred on the turbinated bodies. In most of the cases reported the lesion occurred on the septum.

Dr. BEYAN: About two years ago I had an unusual case in which the primary tubercular lesion was in the post-nasal space. There was a profuse secretion of mucus, especially from the right side of the nose. The ulcerations increased in size, and extended down along the posterior palatine fold. During the course of the disease a swelling presented itself on the left side of the cartilaginous septum. The scrapings from the posterior nasal space, and also those from this swelling, gave a large number of tubercle bacilli. This patient has entirely recovered under local applications of strong solutions of lactic acid and the use of the curette.

Dr. CASSELBERRY: It would seem to me difficult to distinguish primary nasal tuberculosis from primary lupus of the nasal mucosa; and lupus involving the interior of the nose is not uncommon. Etiologically the two conditions are seemingly identical, yet clinically lupus assumes a different course, which would suggest at least a modification of the typical tu-

berculous process. An interesting case of mixed infection came under my observation a few years ago. The patient, a woman, had tubercular infiltration of the upper lobe of the left lung of some years' duration. She acquired syphilis and I treated her for typical primary and secondary symptoms, and for the early tertiary symptoms. About two years after the appearance of the chancre there appeared first within the vestibule of the nose a papular eruption with diffused infiltration, which later extended to the septum and turbinated bodies; while not then actually ulcerated, there was an eroded condition which resisted all attempts at treatment. Gradually the external nasal appendage also began to swell somewhat, and took on a reddish hue. Under the assumption that the condition was syphilitic, the patient was sent to Hot Springs, where vigorous antisyphilitic treatment proved of no avail. The nasal disease became worse. When she returned the lesion had distinctly the appearance of lupus and was so pronounced by several competent dermatologists. Subsequent events have abundantly confirmed this diagnosis.

Dr. MULHALL: In the first case reported by Dr. Farlow no tubercle bacilli were discovered; therefore there is no legal evidence of tuberculosis. Ulcerative lesions of the mucous membranes in my experience, even of a specific nature, are commonly made worse by the use of mercury. Furthermore, it seems somewhat suspicious that this patient was able to take sixty grains of potassium iodide, three times daily, without iodism and not be a syphilitic.

Dr. FARLOW: Under the supposition that the lesions might be syphilitic, the patient was put on "mixed treatment" for a time; potassium iodide, in increasing doses, forty or fifty grains, three times daily, and a quarter of a grain of the proto-iodide of mercury. She took these large doses for a limited time only.

In my paper I said nothing about treatment or prognosis. I simply reported these two cases, which presented sufficient evidence to me to warrant the diagnosis of tuberculosis. In the second case no tubercle bacilli were found. The patient had been under the care of Dr. White for some months, and his decided opinion was that it was not lupus. Dr. Whitney and Dr. Councilman said there was no question about the tubercular nature of the growth, even in the absence of the bacilli.

As regards the use of the curette and lactic acid in these cases, I did not express any opinion as to their value. I hold out no hopes of an absolute cure. Cases of tuberculosis of the nose, however, have certainly been reported in which the patients have lived for thirteen or fourteen years after operation without any return of the lesion. Cases of tuberculosis affecting the septum, in which the bacilli were found, have also been reported. My case was so similar to these, although the bacilli were not found, that I think I am justified in considering it tubercular.

Dr. RICE: Perhaps an interesting clinical fact in connection with this discussion is worthy of mention. When we were all using Koch's tuberculin we had under treatment at the hospital cases of laryngeal tuberculosis pure and simple, and two cases which were stated by Dr. George H. Fox and others to be true lupus of the skin. In one of these the lesion involved the entire integument of the nose and extended into both nasal cavities. In another case, one of tuberculosis of the larynx, there was a spot of ulceration on the side of the nose as large as a penny. All of these patients were given injections of Koch's lymph, and while hardly any benefit was obtained in the case of true laryngeal tuberculosis, the two other cases of lupus were markedly improved by the injections. The extensive ulceration on the integument of the nose in one of these cases of lupus was completely healed by these injections.

It is generally admitted that lupus is a form of tubercular disease, but tuberculosis laryngis and lupus laryngis certainly behaved very differently under the influence of injections of tuberculin.

Dr. F. I. KNIGHT: I should like to narrate the subsequent history of a case which I reported to this association at the first meeting in Philadelphia as a case of lupus beginning in the larynx. Although I am fairly well convinced as to the identity between lupus and tuberculosis, yet the appearances and the clinical history of those cases which we used to diagnosticate with a good deal of certainty as lupus of the larynx or pharynx, as distinguished from tuberculosis, are well marked. One of the cases I reported was that of a girl who had the peculiar thickening and ulceration of the epiglottis which from its history I concluded was lupus—not the tuberculosis of the larynx. Subsequent events showed that the diagnosis was correct. She never had lung disease, but lupus of the nose and face finally developed, so that there was really no question as to the correctness of the diagnosis. That girl was put in the winter of 1891 and 1892 under the most rigorous tuberculin treatment, which resulted in only a very slight amelioration of the skin trouble. She went through a long course of it and finally gave it up and in a few weeks was worse off than before. In that case the tuberculin had no such marked benefit on the lupous lesions as it had in Dr. Rice's cases.

Dr. SWAIN: I should like to relate a case of interest in relation to the cure of local tubercular lesions. The case came up, as did those of Dr. Rice and Dr. Knight, in connection with the use of tuberculin. The patient, when she was about fourteen years old, had been "given up" to die of consumption. She suffered from cough and wasting, and had all the symptoms we are so familiar with. In addition to that, she had local trouble in the larynx. I saw the case later, after the whole process had come to a standstill, and found that the tuberculous process had involved the epiglottis, the epiglottic fold, and a portion of the anterior pillar of the soft palate. The case was treated by the family physician with the view that the lesion might be syphilitic and with no result. He then cauterized it with nitrate of silver, I believe, and with a change of climate the patient completely recovered. Seven years later she had lupus of the nose, as diagnosticated by Dr. Fox, which was treated by him by cauterizing each individual nodule with the actual cautery, plunging a red-hot needle into the tuberculous collection, which caused very little disfigurement. This method of treatment was abandoned when Koch's lymph came out, and she was treated by means of that for eight or ten weeks. We got the typical reaction throughout the entire local lesion, and, what was more interesting, also in the line of the old scar around the epiglottis and the aryteno-epiglottic fold. The tuberculin treatment resulted in no permanent good to the lupus. New nodules formed, and the patient is at present again under treatment by Dr. Fox. There is still some comeliness of the nose, although the outer rim and the septum are involved. I offered to treat her by scraping and lactic acid, but she prefers the old treatment.

Dr. GLEITSMANN: I wish to say that when the lactic-acid treatment was recommended I was one of the first who made extensive experiments with it in one of my clinics at the German Dispensary, and the results of these experiments were published. About that time I had a patient suffering with primary tuberculosis of the larynx. The patient was treated successfully by means of lactic acid, and was shown at the section meeting of the academy; I also related the case in Berlin three years ago. The lesion was an extensive one—so much so that I was almost disheartened. The treatment consisted in scraping the ulceration and rubbing in the lactic acid. The patient was

reported well three years ago, and remained so up to this year. In February last another ulceration appeared at the site of the original lesion. It healed under a similar mode of treatment and the patient has remained well up to the present time.

I wish to add that I have complete faith in the local surgical treatment of the upper air passages in these cases: that is, scraping, the actual cautery, and the application of lactic acid.

Dr. WRIGHT: I have employed this method of treatment in a number of cases, but only in one case have I seen benefit derived from it. For a time I was quite enthusiastic on the subject, but so many failures followed its use that I fell back into my original slough of despair. I recently saw a case of tubercular ulceration of the epiglottis that had been under treatment at the German Dispensary. I scraped the growth and applied lactic acid, with the result that the previously painless ulceration has spread rapidly and become very painful.

NEW YORK STATE MEDICAL ASSOCIATION.

Tenth Annual Meeting, held in New York on Monday, Tuesday, Wednesday, and Thursday, October 9, 10, 11, and 12, 1893.

The President, Dr. S. B. WYLLIE McLEOD, in the Chair.

(Concluded from page 482.)

The Surgical Treatment of Pulmonary Cavities.—Dr. N. P. DANBRIDGE, of Cincinnati, read a paper in which he said that previous attempts to disinfect the secretions found in pulmonary cavities had, as a rule, proved ineffectual. A French writer had reported a case in which the consolidated apex of a lung had been successfully removed from a man twenty-five years of age, but such exceptional cases, while interesting as curiosities, furnished no rule for our guidance. To practice such operations one must ignore all the acquired knowledge of pathology.

The cases in which surgical treatment might be employed to advantage in the treatment of pulmonary cavities might be divided into two classes—viz.: 1. Abscess of the lung, pulmonary gangrene, and hydatid cyst. 2. Tubercular and bronchiectatic cavities. Where tubercular cavities were quite superficial and confined to one side, and the secretion was very free, it would seem that external drainage offered a good prospect of success.

The author then related the history of a case in which he had operated. The patient was a fairly well nourished but alcoholic subject, twenty-nine years of age, having a decidedly phthisical family history. He complained of severe pain on the right side and of constant dry cough, and his temperature was 99° F. The cavity having been properly located by the physical signs, three inches of the eighth and ninth ribs in the axillary line were removed, and the underlying cavity was freely opened. It reached to the surface of the lung, and its walls were rough like those ordinarily seen in phthisical cavities. About half a pint of blood-stained fluid and some debris were removed; the cavity was washed out with sterilized boric-acid solution, and a drainage-tube inserted and allowed to remain for several days. His general condition improved rapidly, and he was discharged from the hospital in about two months. This case showed the type most favorable for the operation. The operation was undoubtedly often undertaken under the mistaken notion that the operator was dealing with a localized empyema. Statistics were quoted to show that the operation was simple and comparatively free from danger.

In the majority of cases of bronchiectasis the dilations were so numerous that little good could be expected from such treatment, but occasionally there were cases in which there was a single large cavity which was evidently chiefly respon-

sible for the bad symptoms; under such circumstances the operation was indicated, although it was more dangerous in this class of cases than in that already described, because the cavities were not usually so superficial.

In cases of gangrene, abscess, and hydatid cyst surgical writers now inclined to the opinion that an attempt should be made to open and drain the cavities whenever they could be properly located. After incision, the cavities were best treated by packing with iodoform gauze. It was important to determine in all cases whether or not adhesions had taken place between the pleura and the chest walls, for the danger of the operation was greatly enhanced by cutting through normal lung tissue. The quantity of discharge from the mouth was said to be no indication of the size of the pulmonary cavity. A large aspirating needle should be first introduced to determine if possible the location and depth of the cavity, and this procedure should be repeated at the time of the operation. The needle could then be used as a guide for the knife.

This paper was considered in connection with the following:

A Discussion on Lesions of the Pleura.—Dr. JOHN SHRADY, of New York County, opened the discussion, propounding the following questions:

Question 1.—What are the factors of pleurisy? What are its forms and contributive conditions? What are the pathological changes in a case of progressive pleurisy ending in recovery?

Question 2.—What are the points of diagnosis in pleurisy and other affections of the chest?

Question 3.—What is the treatment of empyema, with the relative value of aspiration, rib resection, and free opening with tube drainage?

Dr. Shradý said that cold, wet, and traumatism must be considered the chief ætiological factors. The shifting line of dullness in the upper part of the cavity was the key to the diagnosis. Aspiration would usually determine the traumatic nature of a pleurisy by withdrawing bloody serum. Peritoneal and pericardial complications indicated tubercular origin, and secondary pleurisy foreshadowed the probable occurrence of pyopneumothorax. The indications for treatment were to limit the exudation in the early stage, allay pain, relax the bowels, reduce fever, and, later on, promote absorption of the effusion. These were substantially Osler's recommendations. When there was sufficient fluid to produce intermittent orthopnea, when the fluid half filled the chest cavity, when it showed no sign of absorption after a month, and in all cases where there was a purulent effusion, we should aspirate. These were the common-sense and practical rules laid down by Dr. R. C. M. Page. The point of election for thoracocentesis was the sixth intercostal space, close to the upper border of the seventh rib and along the axillary line. In empyema, the center of infection might be outside the pleura, as when it occurred in pyæmia and puerperal septicæmia. In adults it was generally due to pulmonary tuberculosis. It should be remembered that, unless some of the pus was absorbed into the system, its presence might easily be overlooked, and we might explain the fluctuations of temperature by tubercular infection. If there was not sufficient room for drainage after making a simple incision, a portion of the lower rib—not necessarily its entire width—should be excised and a drainage-tube without lateral openings inserted and stitched to the skin. The after-treatment consisted in washing out the cavity with weak antiseptic solutions.

Dr. WILLIAM MCCOLLUM, of King's County, replied to the first question. He said pleuritic adhesions or exudates were found in about half the subjects examined post mortem. Pleurisy was oftener of tubercular origin than previous teaching had

indicated, and the streptococcus, staphylococcus, and pneumococcus had an important ætiological relation to this disease. The streptococcus was oftener present in adults, and the pneumococcus in children. The diversity of opinion regarding the causal relation of pathogenic microbes to pleurisy might be explained partly by the different stages at which different investigators had made their observations, for it was well known that the serous exudate gradually changed to a purulent one. It must also be remembered that the pneumococcus had a brief life, and therefore, in cases in which it had been reported as absent, it might have been present previous to the time of the recorded observation.

Dr. J. BLAKE WHITE, of New York County, replied to the second question. He said that the local pain was not characteristic of pleuritis, although certain peculiar manifestations might aid in making the diagnosis. The pain was sometimes referred to other parts—*e. g.*, the abdomen. In tubercular pleurisy the important symptoms were cough, pain in the side, and dyspnea, and they were developed in this order; but in other pleurisy these symptoms were in a different order—*viz.*, pain in the side, dyspnea, then cough. In the diaphragmatic form the existence of digestive disturbance and hicough might aid us. The tendency to clear the throat when there was no lesion of the throat was quite characteristic of pleurisy with adhesion. A useful point which he had not seen mentioned was that a short, dry cough pointed to adhesions high up in the chest, whereas a prolonged cough pointed to adhesions lower down in the chest. The pericardial friction sound was distinguished from the pleural friction sound mainly by difference in rhythm; a change of sound from the ordinary friction to creaking was far commoner in the pleura than in the pericardium. The writer asserted that, although no one doubted the existence of microbes in pleuritic exudates, no investigation had yet proved their causal relation to pleurisy. Tuberculosis formed the strongest argument for its microbic origin, yet he was a poor diagnostician who waited for the microscope to make the diagnosis.

Dr. J. G. TRUAX, of New York County, also replied to the same question. He said that the friction sound, or pleuritic r le, was not generally heard over a large part of the chest wall, and was seldom present long in any one spot, as it changed with the extension of the inflammatory process. The friction could be felt as well as heard by placing the hand flat on the chest-wall. Sometimes deep inspiration was requisite to elicit the sound, which was most commonly heard in the axillary region or below the nipple. It was audible a few hours after the beginning of the pleurisy, and might last for weeks. To an unpracticed ear this sound would often be overlooked or mistaken for bronchial crepitation.

Dr. CHARLES A. LEALE, of New York County, responded to the third question. He referred to a boy in whom, through the hearty co-operation of the parents, he had been enabled to bring about a complete restoration of the lung and pleura after an empyema without resort to operation. The treatment had extended over a period of two years, and the lung and pleura had been found in normal condition after about five years. Of course, if less favorable conditions had been present, such a result could not have been obtained. Those who favored free incision into the chest should have seen an army officer who had come under his observation during the late war with a terrible gaping wound in the chest. He thought any one who heard this man's piteous appeals to have this opening closed, so as to relieve him of the intense and constant pain, would not attempt to imitate in the name of surgery the frightful act of war.

The writer also cited a case in which a healthy, robust man

had contracted pulmonary tuberculosis from his wife and become affected with empyema. After a sojourn in Egypt for many years he had returned in such good health that he scouted the idea of his ever having had consumption, yet the necropsy on this man had shown all the signs of cured consumption. It had also shown that if the pus had been removed from his thorax it would have interfered with the thick, elastic covering over the diaphragm which Nature had placed there as a barrier to the spread of the disease.

Dr. THOMAS H. MANLEY dwelt upon the dangers of aspirating the chest, and stated that not one of his patients that had been treated in this manner had lived more than three years.

Dr. CROVYN said he was sorry to hear the use of the aspirator decried in this manner, for he was accustomed to use it early in all cases of pleurisy with effusion, and he had never seen anything but good follow this treatment. He held that pus, as such, could remain in the pleural cavity for an indefinite time without doing any harm; it was the absorption of septic pus that was dangerous. He was not in favor of resecting ribs in operating for empyema, because it was unnecessary. He would treat acute pleurisy with dry or wet cups, followed by a brisk purgative, and then with opium. The speaker then referred to the cure of pulmonary tuberculosis by metastasis, and narrated the history of a case in which a man suffering from tuberculosis of the lungs had been cured of this affection by an attack of acute mania.

Dr. FERGUSON said that, as a rule, incision and drainage in empyema effected a cure. In exceptional cases, where one was fortunate enough to diagnose a localized empyema, this could be cured by aspiration.

Dr. DONALD McLEAN, of Detroit, said he had for a long time almost abandoned the aspirator except in rare instances as a means of diagnosis. With this instrument one rarely succeeded in completely emptying a cavity. Resection of the rib he looked upon as fulfilling one of the most important rules in surgery—the establishment and maintenance of free drainage.

Dr. DANDRIDGE said it was very exceptional for him to treat empyema without resection of the ribs. Aspiration had, however, the advantage over the opening into the chest that it maintained the negative pressure and so materially assisted the expansion of the lung.

Remarks on Fermentative Dyspepsia.—Dr. AUSTIN FLINT, of New York County, read a paper on this subject. (See page 425.)

Dr. CROVYN thought that in the class of cases in which the subgallate of bismuth acted so well there was a lack of hydrochloric acid in the stomach, and that the administration of this acid would probably have yielded much the same results. Fermentative dyspepsia was often perpetuated by a too prolonged use of some specially restricted diet.

Dr. HENRY F. RISCH, of Kings County, said that in the treatment of these cases his first effort was to determine whether the fermentation was due to the decomposition of hydrocarbons or nitrogenized substances, and then, having ascertained this, the offending class of food-stuffs was excluded from the dietary.

Dr. LEALE spoke of the excellent results which had been obtained at St. John's Guild Hospital last summer by a resort to lavage of the stomach and bowel. Having once cleansed the intestinal canal, remedies such as the trinitrate of bismuth and Fowler's solution were given.

Bloodless Amputation at the Hip Joint; Report of Cases of Operation by the Author's Method.—Dr. JOHN A. WYETH, of New York County, gave a historical sketch of the various methods that had been resorted to for controlling hemorrhage in amputation at the hip joint. As long ago as 1855

there had been a description in the *American Journal of the Medical Sciences* of a method devised by an American surgeon in which the vessels were controlled by acupressure. In 1890 he had first successfully applied his method in an amputation at the hip, and shortly afterward he had demonstrated it before a number of medical societies. He gave in the paper in brief the histories of thirty-nine amputations which had been done by his method. These operations represented the work of a large number of operators of all grades of skill and experience, yet the statistics were extremely favorable as compared with those of other methods. In thirty-five cases the amputation had been performed for disease, and in four for injury. Of the former, five patients had died, a mortality of fourteen per cent.; of the latter, all had died. These had been cases of unusually severe and extensive injuries, and could not be considered as in any way arguing against the value of the method.

Dr. JOSEPH D. BRYANT, of New York County, said the paper spoke for itself and made it clear that the profession was deeply indebted to the author for making known this bloodless amputation at the hip joint.

Dr. McLEAN said he appreciated the value of the method, but he should not be true to his own convictions and experience if he did not state that he thought his method of compressing the abdominal aorta was still better.

Dr. REGINALD H. SAYRE, of New York County, said that his only two amputations at the hip joint had been done before the publication of Wyeth's method, but from the description of the method he should be inclined to think that in some cases the elastic ligature would be apt to encroach upon the field of operation.

The Code of Ethics.—Action was taken with reference to the question of the advisability of amending the code of ethics. The following was ordered to be sent to the American Medical Association in answer to its letter of inquiry:

"In reply to the notice that the American Medical Association had requested the State medical organizations in affiliation with that body to express their wishes in reference to any changes in the code of ethics, the New York State Medical Association has to state that it has made that code one of its foundation stones, and that it is entirely opposed to any alteration therein. This is the result of a full reconsideration of the subject, and after an experience of ten years of organization under the code."

Treatment often indicated after Trachelorrhaphy.—Dr.

WILLIAM H. ROBB, of Montgomery County, read a paper with this title. He said that the treatment required after this operation might be divided into general and local. In addition to the hygienic treatment, which was extremely important, the general treatment included the administration of medicines. He had obtained especially good results from the use of mercury and iodide of potassium. The former unloaded the portal circulation; the latter acted as an alternative on the uterine tissue. The persistent use of such local measures as leeching, scarification, and puncture of distended cervical glands often sets up a process which would eventually terminate in recovery. Chronic endometritis was the most common complication met with, and it was best treated by dilatation of the cervix, curetting, and drainage of the uterus. Where there were inflammatory deposits and adhesions, skillful galvanic treatment would usually effect a cure; but where this failed, abdominal section was the proper alternative. Imperfect union of the torn surfaces of the cervix after trachelorrhaphy sometimes caused chronic enlargement of the uterus. This might be due to incomplete coaptation of the flaps or to drawing the sutures too tightly.

Dr. A. PALMER DUDLEY, of New York County, said that

much of the treatment which was often left undone until after a trachelorrhaphy should really have been done before the operation; indeed, the operation might not then have been required. He did not approve of the term "areolar hyperplasia," for the reason that the areolar tissue which was supposed to develop after delivery he believed was put there by Nature previous to the completion of gestation, and, as a result of sepsis or congestion, it had not been removed when it was no longer needed. Hence the term subinvolution was more appropriate. Where there was congestion or tenderness of the cellular tissue he did not resort to trachelorrhaphy until after the endometrium had been brought to a healthy condition by division, curetting, and packing. When he performed the operation, he purposely cut the circular artery, and allowed several ounces of blood to escape, and then the main branches of both uterine arteries were ligated so as to "starve" the uterus for a time. In this way the uterus might be rapidly reduced in size. It was proper to examine the cervix immediately after labor, and, if lacerations were found, to repair them at once with catgut.

Dr. FERGUSON thought that there would be some difficulty in determining the existence of a tear at this time, or, at any rate, in determining its limits, particularly in primiparae.

Dr. ROSS said that cleanliness alone was sufficient to cause many minor lacerations to heal without operation; hence the immediate operation was not demanded in many cases.

Voluntary Commitment of the Insane to Asylums.—Dr. W. D. GRANGER, of Westchester County, read a paper in which he said that the central idea of asylum care to-day was the preponderance of medical supervision and individualization of the treatment. The exercise of liberty and the consequent development of self control were important factors in this treatment. Voluntary commitment was desired by a certain class of the insane, and several States had enacted laws governing such commitments. These persons were usually committed for a certain short period, and were to be discharged on a written notice being given. The great defect of this system was that after commitment these patients were treated about the same as those in the asylum who had been involuntarily committed; they were deprived of their liberty. To obviate this, the Commissioners in Lunacy in New York State had devised a plan of commitment to family asylums for no specified time, the patient being allowed to leave whenever he desired to do so. It was expressly stipulated that no person should be voluntarily committed who was in such a condition as not to appreciate fully what he was doing. These asylums were visited by the commissioners, and they had a right to discharge those who might have been committed in this way who they thought had not thoroughly comprehended the meaning of their commitment.

Dr. ELIAS LESTER, of Seneca County, said this method of commitment ought to prove very useful, especially in those rather numerous instances in which it was very difficult to decide at once whether or not the patient was really insane. In his vicinity, however, the law had been made very obnoxious; he was not positive whether this was due to imperfections in the law itself or to the capriciousness of the authorities at the asylum.

The Treatment of Typhoid Fever.—Dr. GUSTAVUS ELIOT, of New Haven, Conn., read a paper in which he said that, as absolute quiet and rest in bed were essential to the safety of the typhoid-fever patient, it should be the rule in every case of fever where there was a possibility of its proving to be typhoid to exclude this disease before allowing the patient out of bed. Neglect of this precaution had caused many deaths. This condition of quiet, both of body and of mind, must be maintained until both the morning and evening temperature had remained

for at least a week below 99° F. The writer believed that the calomel treatment had given the best results, and he advised the administration of from seven to ten grains on alternate days until four doses had been taken. The sooner this was done the better. The calomel usually produced easy and moderate evacuations of the bowels, and by removing fecal matter, bacteria, and ptomaines, acted as an intestinal antiseptic. Iodine and carbolic acid were both sedative to the stomach when given in dilute form, and their administration in enteric fever along with the calomel treatment, as just described, seemed to improve all the symptoms and shorten the course of the disease.

Dr. GEORGE DOUGLAS, of Chenango County, said he had been particularly pleased with the emphasis that had been laid on the importance of absolute rest—a fact difficult to impress upon the laity. It was useless to administer medicines with the object of aborting the fever, but where there was much diarrhoea it would be found advantageous to give creasote in a weak solution of magnesia. He would not care to give the calomel more than three times, and sometimes he would prefer to substitute a dose of magnesia for the third dose of calomel. He did not approve of the early or free use of alcoholic stimulants.

Dr. WILLIAM FINDER, of Rensselaer County, believed that in the early stage the quantity of food given should be small. The mineral acids, particularly dilute phosphoric acid, were useful, and he had unbounded faith in sulphocarbolate of zinc as an antiseptic and astringent.

Dr. ELIAS LESTER, of Seneca County, said that there seemed to be a strong malarial element in all the cases occurring in his part of the State, and that therefore he found it absolutely necessary to administer quinine.

Dr. JOHN H. MARTIN, of Otsego County, was heartily in favor of a few doses of calomel at the outset, and after this he gave Lugol's solution of iodine or, if the intestinal symptoms were marked, oil of turpentine. He fed his patients well from the beginning. He was entirely opposed to the use of alcohol in typhoid fever.

Dr. E. R. SQUIBB, of Kings County, thought the chemistry of calomel, when introduced into the body, would throw light upon its action in typhoid fever. When calomel was taken into the body it was converted into an albuminate, and this, in turn, was slowly converted into the bichloride of mercury; hence it was probably largely because of its antiseptic properties that it had proved so useful in this disease.

Rare Forms of Gout and Rheumatism.—SIR JAMES A. GRANT, of Ottawa, Canada, read a paper in which he described in detail the histories of three or four interesting cases of gout and rheumatism that had presented unusual manifestations. In one case, which he had diagnosed as rheumatic perityphilitis, a young girl presented all the usual symptoms of perityphilitis for some days, and then suddenly became affected with well-marked symptoms of acute articular rheumatism in the joints of the upper extremities. At the same time the abdominal symptoms began to improve very rapidly. The fact that errors of diet so frequently acted as predisposing causes of rheumatic attacks led one to the belief that the theory that rheumatism was due to defective assimilation and excretion was probably correct. Haig, of London, believed in rheumatism and gout affecting the walls of the intestines. While gout was almost unknown in Canada, rheumatism was quite frequent, yet among the lumbermen, who were exposed to all the rigors of that trying climate, rheumatism was not very common, probably owing to the fact that they lived chiefly on pork, bread, and tea. Simplicity of diet explained their immunity from rheumatism.

Surgical and Pathological Memoranda was the title of a paper by Dr. DONALD McLEAN, of Detroit, who described a

number of interesting cases occurring in his practice, and laid down the principles which had guided him in treating them.

He had had an unusual number of ununited fractures of the long bones, and had found it necessary in some cases to resort to amputation. He had come to the conclusion that the commonest cause of non-union of fractures was excessive violence at the time the fracture was produced.

In cases of amputation at the thigh, he was strongly in favor of using the abdominal tourniquet or aortic compressor. The instrument should be placed over the umbilicus, with an intervening pad. Not only did it very thoroughly control the hemorrhage, but after the limb had been amputated the process of securing the vessels was greatly facilitated by releasing the pressure very slightly, and thus allowing the escape of a few drops of blood.

He had successfully treated two cases of spina bifida by injections of iodine and subsequent amputation.

In two cases of painful tumor of the median nerve he had excised the tumor with complete relief. One of the tumors was exhibited.

Discussion on the Treatment of "Appendicitis."—Dr. FREDERICK S. DENNIS, of New York County, opened the discussion, propounding the following questions: 1. What proportion of cases of appendicitis end in resolution? 2. What cases require immediate operation? 3. What cases do not require immediate operation? He said that there were several different varieties of inflammation in the region of the cæcum, and there was no reason why ordinary inflammation in this region should not undergo resolution as well as elsewhere. It was now pretty generally accepted that about fifty per cent. of cases of inflammation in this region went on to resolution, and only about eleven per cent. were relapsing. Where there were a rapid pulse, suppurative temperature, and intense pain, and there was no abatement after forty-eight hours, it was proper to operate, but he did not approve of operative interference unless the symptoms were urgent. The operation itself was not trifling, the length of the incision made ventral hernia a very common sequela, and there were many cases on record of errors in diagnosis made by eminent practitioners.

Dr. JOHN W. S. GOULEY, of New York County, said he fully agreed with the writer's views on this subject. Since the publication of Dr. Willard Parker's paper he had observed twenty-four cases of appendicitis that had ended in resolution. He had recently seen a patient who had been sent to hospital for operation; yet, after making a careful examination and confirming the diagnosis, he had refused to operate and the patient had recovered completely. While an operation was not required in at least half the cases, there were instances in which very prompt surgical interference might save life. For example, a few years before, he had seen a young gentleman who five days before, while dancing, had been seized with such severe pain in the right iliac region that he had had to be taken to bed. When first seen he was almost moribund. The autopsy showed general peritonitis and perforation of the appendix vermiformis.

Dr. McLEAN said that the questions propounded here for discussion were among the most difficult of those which confronted the surgeon, and no one practitioner's experience could justify a positive answer to all these questions. The speaker then narrated a number of interesting cases illustrating the difficulties of the subject. A young man of delicate constitution had symptoms of acute appendicitis—sallow complexion, rapid pulse, moderate fever, and local pain. Being loath to operate on such a subject unless it was absolutely necessary, the speaker had decided to wait for twenty-four hours. At the end of this period there was slight improvement, and the patient

ultimately recovered without surgical interference. In another case—one of recurring appendicitis which he had seen in consultation—both physicians had agreed that the time had come to operate, so the operation was performed with every precaution known to surgical science, yet the patient lingered in agony for twenty-four hours and died. There must have been in this case a secondary reservoir of pus which spread the infection. He could recall having seen during the past two years quite a large number of cases in which, notwithstanding that the symptoms were urgent, the patients had recovered without an operation.

Dr. JOSEPH D. BRYANT, of New York County, said that, in about seventy per cent. of males and forty per cent. of females, a foreign body might be found in the appendix, and this was about the relative frequency of appendicitis in the two sexes. Fitz had shown that fifty per cent. of fatal cases examined showed perforation of the vermiform appendix. If perforation had occurred, the symptoms would be very acute in almost every instance, and indicate the necessity for immediate operation. The "McBurney point" could not be considered as pathognomonic, for, aside from the fact that it had been found under other conditions, it was evident, from the great variation in the position of the caput coli, that no such fixed point could represent the position of this part of the bowel in any large number of cases. Neither was the presence of a tumor of much assistance in making the diagnosis, for in fourteen per cent. of the cases the vermiform appendix extended into the pelvis, in about twenty per cent. it was behind the caput coli, and in two per cent. it was high up behind the colon. If the fever, tenderness, and tympanites continued after three days, and especially if there was rigidity of the rectus muscle, he would advise an operation.

Dr. J. A. WYETH, of New York County, heartily indorsed the position taken by the preceding speaker; if one was in doubt it was much safer to err on the side of an exploratory operation. All the disasters he had seen in the surgery of appendicitis had been due to delay. Besides this, there was much less danger of ventral hernia following the early operation than the late one, for in the latter case it was necessary to allow the wound to heal slowly by granulation.

Dr. FERGUSON said that his surgical work had been done in private practice, yet, out of about twenty cases seen annually, not more than three or four had required operation. It was important to remember that when the appendix could not readily be found it was better to leave it behind.

Dr. CROXON narrated briefly the history of a case in which the signs and symptoms had pointed rather strongly to appendicitis, and after some delay an operation had been performed, but nothing found. On the fourth day after the operation something white was discovered at the bottom of the wound; this proved to be a piece of omentum, and on its removal the patient rapidly recovered.

The Male Catheter, with some Observations upon the Proper Mode of its Introduction into the Bladder.—Dr. DOUGLAS AYRES, of Montgomery County, in a paper thus entitled, considered it very important that one should bear constantly in mind the three great anatomical divisions of the urethra—viz., the prostatic, the membranous, and the spongy portions, and their respective lengths and diameters. He preferred in most cases to use a silver catheter, No. 9 or No. 10 of the American scale. This size corresponded most nearly to that of the average urethra, and consequently was less likely to be caught in the folds of mucous membrane than a smaller catheter. The various flexible instruments were very useful in some cases where the canal was tortuous, but he relied chiefly on the silver catheter, as he could much more easily determine

its exact position in the urethra and could therefore guide it more intelligently. In introducing the catheter, it should be kept in the median line and close to the surface of the abdomen until it entered the membranous portion, in order to avoid its engaging in the upper portion of the triangular ligament. The patient should be in the recumbent posture, with the thighs well separated and flexed and the shoulders moderately elevated. A hint worth remembering was that sometimes by pressing down the soft parts above the pubes the suspensory ligament would be relaxed and the introduction of the instrument thereby facilitated.

Dr. JOHN W. S. GOULEY then exhibited a bronze model of a catheter found in the ruins of Pompeii. It was interesting to note that it had the sigmoid form believed to have been first introduced about two thousand years later, that it had a distinctly conical shape, and that it had a single eye very near the vesical extremity. Dr. Gouley exhibited a number of catheters of domestic manufacture, and called attention to their fine finish, which, in his opinion, was much superior to that of the foreign instruments.

Researches on the Efficiency of Vaccinia after Typhoid Fever.—Dr. WILLIAM FINDER, of Rensselaer County, in a paper with this title, said that when vaccination was first introduced it was believed that one vaccination would protect the individual for an indefinite time. Although this was now known to be incorrect, we were still in the dark as to the number of years it would ordinarily give this protection against small-pox. Thus far the contagious principle of variola and that of vaccine had not been discovered.

From 1874 to 1880 small-pox had been almost constantly epidemic in Troy. At this time he had observed three persons who had had in childhood a slight attack of small-pox, and yet after vaccination they presented a beautiful pock. Inquiry elicited the fact that they had recently been ill with typhoid fever, and further observation showed that other persons who had been ill with typhoid fever were successfully vaccinated, while many individuals who had not had this fever could not be successfully vaccinated. From this he concluded that typhoid fever removed the protection afforded by vaccination. He had since had an opportunity of confirming this theory in other cases, but he had waited for years before publishing these observations, in the hope of having other opportunities for verifying them again. It was his practice now to revaccinate after typhoid fever.

Reflections on the Need of Close Observation of Disease and upon the Value of Hygienic Therapeutics.—Dr. H. ERNST SCHMID, of Westchester County, introduced his theme by several amusing anecdotes designed to show the importance of very minute observation. This was all-important to medical men, and explained the seemingly miraculous powers of some diagnosticians of note. Medicine was far from being an exact science, and there must be many roads leading to the same goal; the skill of the physician was shown in his selection of the road. Amid all these uncertainties physicians were often blamed, and even sued for malpractice, when a case did not turn out as satisfactorily as one might wish. Had a lawyer ever been sued or punished for losing a case? Yet the same law punished the physician for his mistakes. In closing, the author touched upon the relation between disease and the weather, and advocated a more general adoption of hygienic, dietetic, and hydropathic treatment.

A Case of Puerperal Blindness was reported by Dr. DARWIN COLVIN, of Wayne County. It had occurred in a woman who, in two or three previous pregnancies, had had edema, vertigo, and puerperal eclampsia. She had been under the care of another physician, so the advice of the writer had not

been sought until 1890, when she was again about seven months pregnant. The urine for the twenty-four hours did not exceed ten ounces, and it contained a large quantity of albumin. Literal venesection—twenty-four to thirty ounces—with the patient in the recumbent posture, followed by a hydragogue cathartic, was advised. The attending physician hesitated to bleed her, and there was a long delay, so that she had already become blind before this was done. Immediate improvement followed the venesection, and six days later labor occurred quite unexpectedly. It terminated without special complication, and the child was alive and healthy. Eleven days after confinement the author saw her, and found her still totally blind, and the urine still scanty and albuminous. This was in November, and it was not until the following March that there was positive evidence of improvement in her vision. After about a year her vision became fairly good, but not so good as before this pregnancy. The writer's conclusions were that, as she was a multipara, greater danger was to be apprehended in view of her previous history; that immediately after the occurrence of edema, and before the development of the eye symptoms, she should have been very carefully watched; that when the anasarca and cephalalgia were first observed free venesection should have been employed and the diet regulated; that shortly before the expected time of her confinement, if there was no improvement, another venesection would be imperatively demanded; and that, if it had not been for the venesection, she would have had eclampsia in this last labor, and probably the eye lesions would have been more lasting.

Dr. T. J. MCGILLICUDDY, of New York County, said he had seen five cases of blindness occurring with puerperal eclampsia. None of these patients had been bled, yet all had recovered perfectly after delivery. All these patients had been young women, and in all the blindness had come on just prior to or during the convulsions.

A Plea for the Non-operative Method of treating Dysmenorrhœa, Pelvic Inflammation, and Pelvic Abscess.—A paper with this title was read by Dr. T. J. MCGILLICUDDY, of New York County. (To be published.)

Officers for the Ensuing Year.—Dr. THOMAS D. STRONG, of Chautauqua County (fourth district), was elected president, and Dr. ISAAC DE ZOUCHE, of the first district, Dr. JOHN C. BENHAM, of the second district, Dr. HOMER O. JEWETT, of the third district, and Dr. JOHN D. RUSHMORE, of the fifth district were elected vice-presidents.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Nineteenth Annual Meeting, held in Indianapolis on Wednesday, Thursday, and Friday, October 4, 5, and 6, 1893.

(Concluded from page 513.)

SECTION IN GENERAL SURGERY.

Dr. W. N. WISHARD, of Indianapolis, Chairman.

Some Illustrative Cases of Nasal Headache.—A paper with this title was read by Dr. H. W. LOEB, of St. Louis, who, at the last meeting of the Missouri State Medical Association, had presented a paper upon nasal headaches in which the following list of such conditions was suggested as possessing an ætiological significance: Acute inflammations of the nasal mucous membrane, chronic rhinitis, rhinoliths and foreign bodies, septal deformities, deflections, spurs and ridges, diseases of the accessory sinuses, chronic atrophic rhinitis, and anything which caused the middle turbinate tissues to press against the septum. In headaches of the following characters, it was stated that a nasal origin might be expected: 1. Frontal headaches 2. Hemicrania starting about the orbit. 3. Long-continued

headaches. 4. Headaches of which successive attacks were identical or similar. 5. Headaches increased or originated by acute rhinitis. 6. Headaches associated with evident disease of the nose or accessory cavities.

In the present paper the author presented cases which illustrated the characteristics, both symptomatic and causal, stated in the before-mentioned contribution.

The Treatment of Fractures of the Leg.—Dr. J. T. BERGHOFF, of St. Joseph, Mo., in a paper on this subject, said that fractures of the leg should never be treated with the leg resting on the bedding, but it should be suspended. He cared not how well the surgeon might coaptate the broken bone and protect the same with splints and bandages or plaster of Paris; if the limb rested on the bedding, by each movement of the body of the patient the fracture was sure to move. The process of repair was exactly the same in soft tissues and in bones. Why did union by first intention take place? Because the lips of the wound were exactly coaptated, and kept so. The wound healed sometimes in three days, at the furthest in a week. But to put a broken limb in an immovable condition and keep it so without great suffering to the patient could not be done under the old system.

Dr. Berghoff then described an apparatus, or splint, the outgrowth of patient study for twenty years, but more particularly the last ten years. The apparatus was also adapted for treating disease of the hip, knee, and ankle joints, for the extension could be adjusted as the case required, the joints being kept immobile.

Incurability of Advanced and Extreme Cases of Talipes Equino-varus by the Means and Methods in Vogue at the Present Time; Suggestion of a Way to remove the Deformity without disturbing the Usefulness of the Extremity.—Dr. LOUIS BAUER, of St. Louis, presented a plaster cast of a talipes varus in which the weight of the body rested upon the dislocated astragalus and calcaneum. He produced also the skeleton of the leg and foot of a person who had died while in this condition. He showed that there was complete dislocation of the astragalus; that joint surfaces had formed between that bone and the calcaneum whereby the weight of the body rested entirely upon the end of the astragalus and calcaneum; and that the scaphoid and other bones of the foot bore little if any part in sustaining the weight of the body. It had been found impossible in extreme cases of talipes to restore the foot to its natural position by tenotomy or by *brisement forcé*. In one case, after six years' trial, the author had proposed an amputation similar to Chopart's whereby all the bones anterior to the astragalus were removed. The operation would leave a linear scar anterior to the astragalus in its new position and would be out of the way, and in such a direction the artificial foot could be easily adjusted. He had not had an opportunity of trying this method, but felt sure that this amputation was a proper method in cases where, after long-continued efforts, reduction could not be effected. He also reported a case where there had been extreme lateral curvature of the spine from distortion of the pelvis in a young musician. He had become satisfied that the deformity was due to the unnatural position, and had therefore directed a long splint applied reaching from the axilla to the foot, and the pelvis had gradually been pressed toward the splint by an appropriate bandage. After a period of time not stated by the author the patient had recovered.

Dr. MARSEE, of Indianapolis, took strong ground against tenotomy, tarsectomy, and amputation in these cases, holding the position that by *brisement forcé* with a wrench or clubfoot stretcher he could bring the most refractory foot into normal position.

Dr. W. E. WIRT, of Cleveland, believed in resection of some

of the bones after the method of Phelps in cases where tenotomy and linear osteotomy had proved unavailable.

Dr. JOHN B. HAMILTON, of Chicago, agreed with Dr. Marsee in recommending the use of a clubfoot stretcher or wrench. He would not hesitate to apply a force sufficient to comminute the dislocated astragalus if it was necessary to put the foot in position. He had seen no bad results following osteoclasis. The difference between osteoclasis and osteotomy or tarsectomy was precisely that between a simple and an open fracture. In regard to abrasions of the skin, he had not met with any, and decidedly preferred osteoclasis.

New Devices for cutting Bone.—Dr. ALLAN DE VILBISS, of Toledo, exhibited a surgical motor with various forms of saws and drills. He had used the instruments first upon the dead, afterward upon the living. These instruments were adapted for operations upon the skull, maxillary bone, ribs, nasal bones, etc.

The Treatment of Old Cases of Hip Disease.—Dr. WILLIAM E. WIRT, of Cleveland, read a paper in which he said there was no doubt that if convalescent cases of hip disease were carefully and persistently treated during a long period of complete recovery, whatever deformity had existed before and that which accompanied this period could be entirely overcome without operation. When should a case of hip disease be considered to have progressed far enough to permit of the removal of the extension splint and the substitution of a convalescent brace? The solution of this problem was a matter of judgment. It was better to allow the extension splint to be worn unnecessarily long than for the substitution to be made too soon. The deformities requiring correction were flexion and adduction. Dr. Wirt had been surprised in several instances of old cases of hip disease with considerable deformity to find that after the application of continuous extension in bed for a few weeks the deformity was considerably reduced. After a trial of extension in bed with a failure to reduce deformity there remained as a means of correction: 1. *Brisement forcé*, with or without myotomy, tenotomy, fasciotomy, etc. 2. Osteoclasis. 3. Osteotomy. Osteoclasis and osteotomy were to be reserved for cases in which there existed bony union or a fibrous ankylosis of a very firm character. The author reported sixteen cases following Grant's operation.

A Case of Senile Gangrene treated by Amputation.—This paper was contributed by Dr. G. W. H. KEMPER, of Muncie, Ind. The patient was a farmer, aged seventy-three years. After detailing the particulars of the case the author drew the following deductions: 1. While the gangrene is confined to one or two toes, it is best to defer amputation. If the disease extends to the dorsum of the foot, amputation is proper. 2. Amputation below the knee is rarely successful, owing to lack of proper blood supply and the tendency to recurrence of gangrene in the stump. 3. Amputation through the thigh will save a large per cent. of the patients, especially if they are free from general disease. Mansell-Moullin had observed that usually the thigh was small and wasted in the lower third, the artery was sound in Hunter's canal, the flaps were well supplied with blood, and old people, as a rule, resented operations very slightly. Their tissues were not prone to inflammation. 4. When amputation has been performed below the knee, and gangrene appears in the stump, unless the patient is exhausted, it will be proper to perform a secondary amputation above the knee.

A New Method of Operating at the Ankle Joint for Injuries of the Foot.—Dr. I. N. QUIMBY, of Jersey City, read a paper thus entitled. The method consisted in making a curvilinear incision across the dorsum of the foot, beginning anterior to and a little below the internal malleolus and terminating at

a corresponding point a little below the external malleolus, and then uniting the two extremities of the dorsal section by an incision across the sole of the foot, forming an anterior and posterior flap, as in the operation performed by Pirogoff. After forming a short anterior flap and turning it back, he then dissected out the astragalus from its attachments, being careful to keep close to the bone; then, forming a linear posterior flap from the sole of the foot, he made a careful dissection, exposing the anterior half of the calcaneum. This being done, and the soft parts being well retracted by an assistant, the saw was applied so as to remove nearly the anterior half of the bone by an incision from above downward and from behind forward. The sharp edges of the remaining portion of the bone were then rounded off and the sawed surface was applied directly to the articular surface of the tibia between the malleoli, without removing any part of the cartilaginous surface. After stitching up the flap in the usual way a strip of adhesive plaster three or four inches in width was applied from the upper portion of the gastrocnemius muscle to a corresponding point on the anterior surface of the leg, passing directly over the os calcis so as to keep it closely and firmly in apposition to the articular surface of the tibia, and it was kept there until the union of bones had taken place.

The Bacteria of the Surface.—Dr. FRANK J. THORNBURY, of Buffalo, read a paper with this title in which the latest researches were set forth, rational mechanical means of disinfection were summarized, and the non-utility of antiseptics was proclaimed. The varieties of organisms which the cutaneous and mucous surfaces presented in great abundance comprised molds, yeast fungi, bacilli, cocci, and color-producing and odor-producing bacteria. The hairy regions, such as the axillary space, and the interdigital folds were the places of predilection for the bacteria upon the cutis. Myriads of microbes were present in the oral cavity, in the intestinal tract, in the genital tract of the female, in the male urethra, in the conjunctival secretion, and in the cerumen of the ear. Among the masses were germs which were pathogenic, such as the *Fehleisen streptococcus* of erysipelas. The cleansing of the surface constituted one of the most important requirements of asepsis. This pertained especially to the physician's own hands. The disinfection could not be accomplished by the use of antiseptics (so called) which did not even reach the bacteria imbedded in the substrata of fat and dirt. The disinfection must be mechanical, dissolving away the glandular secretions, dead epidermal cells, and vegetable and albuminous substances. For the latter purpose soap, hot water, and brush were used, aided with alcohol and ether, and rubbing with sterile towels. Baths were an important adjunct to asepsis, and one or a number should be administered previous to an operation.

The Etiology, Diagnosis, and Treatment of Ulceration of the Rectum.—Dr. JOSEPH M. MATHEWS, of Louisville, dealt with this subject in a general way. As a matter of convenience, he classified these ulcers under four heads—benign, malignant, tubercular, and syphilitic. He said to this division there might be a valid objection based upon correct pathological grounds. For instance, in this classification he made the term malignant mean cancer, and yet the tubercular ulcer might in truth be malignant without assuming the characteristics of cancer. Again, some writers would have us believe that a tubercular patient was closely akin, at least, to a syphilitic one, or *vice versa*. Benign ulceration was not so frequently found in the rectum as was supposed. Whenever the author met with a well-defined ulceration existing in the rectum, he immediately suspected some special diathesis. It was only when the facility of defecation was interfered with that any danger was to be feared. The lumen of this portion of the gut

was not narrowed by any ordinary causes. For these and other reasons the author had long since been forced to believe that such ascribed causes as pregnancy, dysentery, etc., were not great factors in producing ulceration of the rectum. He then dwelt upon malignant ulceration of the rectum, saying that the rectum was a favorite seat for cancer. Many times the disease was overlooked entirely or diagnosed as some other affection. It had occurred to him several times to have patients referred to him for some trivial rectal trouble and to find cancer instead. The more he practiced the more he was convinced that syphilis was responsible for fully one half of the cases of severe ulceration of the rectum.

The treatment must in every individual case depend upon the known character of it. We could not treat a benign ulcer as we would a malignant one, or a tubercular ulcer as we would a specific one, or the last-named as we would the first-named. Benign growths of the rectum required local applications; malignant, extirpation; tuberculous, the curette; syphilitic, anti-syphilitic and local medication, extirpation, or colotomy.

Inguinal Colotomy.—Dr. LEON STRAUS, of St. Louis, read a paper with this title, in which he entered a plea for more frequent and earlier colotomy in painful malignant diseases of the rectum. He stated his reasons for doing colotomy as follows: 1. It was the greatest modern surgical measure, inasmuch as it completely did away with the function of the rectum, thereby relieving the intense pain caused by defecation. Pain was an inevitable result in advanced malignant disease of the rectum. There were a few exceptional cases, which only proved the rule. 2. The lease of life was extended. There were many instances where it had been considerably extended. Such great authorities as Cripps, Allingham, and Eiselsberg professed to have extended the lease for weeks or months. Were not these most cogent reasons for doing colotomy? 3. The risk of the operation had been minimized. Allingham had done sixty-eight colotomies with only two deaths, and those in total-obstruction cases; Cripps, forty-five, with one death in a total-obstruction case; Edwards, sixteen, with one death, that of a patient who was very septic at the time of the operation; Reeves, sixty-five operations, without a death; and Goodsell, twenty-two, without a death. Statistics showed a death-rate of less than two per cent. By early colotomy, the author believed, the death-rate might be reduced to less than one per cent.

Kraske's Operation, with Report of Cases.—Dr. H. O. WALKER, of Detroit, in a paper with this title, said that when the malignant growth was high up, say two or three inches above the anus, the best operation to do would be Kraske's, that of making an incision down through the second sacral vertebra to the anus to the left of the coccyx and rapidly stripping off the muscular and ligamentous attachments to the coccyx and cutting them away with the bone forceps, together with as much of the sacrum as was necessary to expose the growth. Then we had a full view for enucleating the growth and excising it. It was well known that it was a difficult matter to approximate the ends by the suture method, and the idea had been forced upon the author from his knowledge of the Murphy button that with a large button, say two inches in diameter, which he now exhibited, he could approximate the cut ends of the rectum and by this means prevent the infiltration of fecal matter, which by the other method was an impossibility. In this connection he said he had made the first end-to-end approximation by the Murphy button in a case of fecal fistula on the 8th of December, and the patient on whom he had operated had made a good recovery and within two weeks had been as well as ever, with no evidence of any contraction of the intestine.

Some Heresies regarding Prostatic Pathology.—This paper was contributed by Dr. G. FRANK LYDSTON, of Chicago. The author said that among the many ills which were marked *noli me tangere* until within recent years, and which modern surgery had done much to relieve, prostatic hypertrophy occupied a very prominent position. The surgical resources at present at our command were then briefly stated. The author was daily becoming more firmly convinced that the ideal operation was a combined suprapubic and perineal section performed at an early period. He believed that in many cases this early operation would not only forestall circumscribed prostatic obstructions, median or lateral, but prove directly curative by restoring the normal function of micturition. Suprapubic cystotomy was undoubtedly the best method of draining the bladder, so far as a single operation was concerned, and in many instances it was all-sufficient. When combined, however, with perineal section, prostatic dilatation, and prolonged drainage by a large tube, it often did away with certain conditions which existed in the way of contracted lumen of the prostatic urethra and over-excitability of this portion of the urinary tract, which suprapubic cystotomy alone might not accomplish.

The author believed that the main causes of prostatic disease were at work in many cases, if not the majority, before middle life.

Officers for the Ensuing Year were elected as follows: President, Dr. X. C. Scott, of Cleveland; vice-presidents, Dr. Leon Straus, of St. Louis, and Dr. G. Frank Lydston, of Chicago; secretary, Dr. Frederick C. Woodburn, of Indianapolis; treasurer, Dr. George J. Cook, of Indianapolis. Hot Springs, Ark., was selected as the next place of meeting.

New Inventions, etc.

A VAGINAL SPECULUM FOR USE IN IRRIGATING AND WASHING OUT THE UTERUS AND VAGINA.

BY JAMES C. DAVIS, M. D.,
ROCHESTER, N. Y.

It is very difficult, if not impossible, with the means at our disposal, to wash out the vagina or uterus while the patient is in the recumbent posture without wetting the clothes she wears, as well as the bed or couch on which she lies.

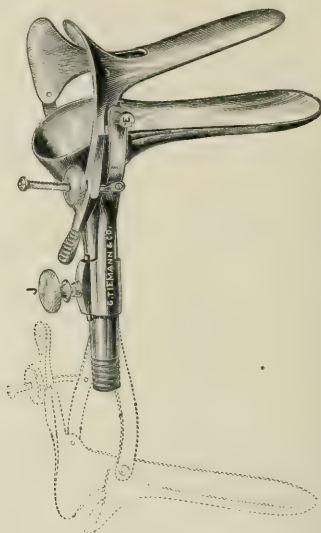
Messrs. George Tiemann & Co., of New York city, have made, at my suggestion, a new vaginal speculum which obviates that difficulty and dispenses with the oilcloth and basin, now in use, placed under the hips of the patient.

Nine months ago I made my first model, and after a score or more of thorough tests I present it to the medical profession for their kind consideration.

The instrument is strong, light, and well proportioned, easy to take apart for cleansing, or to change into other forms, viz.: By loosening the set screw E the upper blade can readily be removed; then loosen the set screw J and remove and reverse the support of the blade and we have the Sims. By leaving the upper blade off with its support we have the Simon's perineal retractor with the addition of a hollow handle to carry *débris*, blood, and mucus through the hose into the waste pail below.

All gynecologists appreciate the necessity of cleansing the surface of the os uteri and vagina of any discharge that may have accumulated, thereby enabling them to detect any trace of granulations or small ulcers present that would otherwise be overlooked.

Before introducing any speculum for diagnostic purposes the os uteri should always be located, then the anointed speculum held in the right hand, between the first finger and the thumb, obliquely to the orifice; the blades, being gently pressed against the perineum, should be rotated upward and backward on its axis, the posterior blade resting on the perineum with the points of the blades in the posterior *cul-de-sac* of the vagina. When the speculum is placed (it being self-retaining), press the



small lever with the thumb of the right hand and set the screw with the left; the cervix uteri being brought well in view between the blades, irrigate with some antiseptic solution and we have a clean surface to treat.

Having experienced comfort and a saving of both time and temper by the use of the speculum described, I have no hesitation in recommending its use as a vast improvement on any form of vaginal speculum known to me.

138 EAST MAIN STREET.

Miscellany.

The New York Academy of Medicine.—The special order for the last general meeting, on Thursday evening, the 2d inst., was a paper on The Importance of Early Attention to the Disability caused by Infantile Paralysis, by Dr. A. B. Judson.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 9th inst., the subject of intestinal obstruction in early life will be discussed. A case simulating that condition will be reported by Dr. Henry D. Chapin; Dr. John Dornning will read a paper entitled Forms of Intestinal Obstruction, with their Diagnosis; and the discussion on the medical treatment will be opened by Dr. Joseph E. Winters, and that on the surgical treatment by Dr. B. Farquhar Curtis.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 14th inst., Dr. W. K. Otis will read a paper on Aero-urethroscopy, and show a new instrument.

Original Communications.

DRAINAGE OF OVARIAN CYSTS

WHERE THE ADHESIONS ARE SUCH THAT
IT IS IMPOSSIBLE TO REMOVE THE SAC BY CELIOTOMY.*

By A. VANDERVEER, M.D.,
ALBANY, N. Y.

In the diagnosis and treatment of ovarian cysts it is, I think, admitted by all that little more can be said in that direction than has already been accomplished. Without fear of contradiction it may be asserted that each operator has his particular technique that he follows with conscientious care; there may be some slight deviation in the method of emptying the sac, in applying the ligatures, or the use of the cautery to the pedicle, and in closing the abdominal incision. This paper is not intended to touch upon such points, but now and then we meet with a case presenting such strong adhesions of the sac to the various organs that the question is at times forcibly impressed upon us, How far shall we go in making a prolonged operation without immediately resulting in such marked shock as to complicate seriously the patient's living many hours, or a death resulting, the latter being always detrimental to our would-be successful operations in that particular neighborhood where the patient resides? The pathological conditions and changes—the symptoms that are associated with the formation of adhesions—in the developing of a case of ovarian cyst are, I am quite certain, at times passed over too lightly; that is, the patient not infrequently does not lay sufficient stress upon the history of her case when detailing it to the family physician, or to the surgeon who is about to operate.

Localized pains are not sufficiently emphasized, slight accidents are forgotten, and adhesions have resulted very often out of proportion to what seemed trivial causes and conditions.

Again, on the other hand, patients are not infrequently subjected to too many examinations, this being, quite often, the fault of themselves or their friends. They are desirous of seeing too many physicians, and an undue and severe handling of the case may bring about localized pain or peritonitis, resulting seriously when the time comes for operation. There is often an additional and unnecessary nerve strain given to many patients by too frequent and too severe methods employed in the examination of cases of suspected abdominal tumors. Members of our profession have learned fully the danger that results from the use of the aspirator and trocar, and in that direction patients have been relieved from the employment of measures that afterward so frequently produce adhesions externally, as well as suppuration within the sac.

Then, again, cases may be examined with ever so much care; we learn all that is possible of the previous history, as to traumatism that may have occurred, with or without

marked evidence of local pain and peritonitis having supervened, and yet serious adhesions may be present. Some women will tolerate much more readily than others the pains that result in peritoneal adhesions. We know that no two cases go on precisely alike. The rapidity with which adhesions will sometimes form in one case and the extent of their development are out of proportion to some other cases where the ætiological factors have been equally as great. Very properly an operator of experience at the present time does not subject his patient to too long and too nerve-depressing examinations. I take it the experienced operator of to-day has not by any means given up the term exploratory incision in such cases as present with an indefinite history, yet adhesions suspected, though the incomplete operation grows less and less as the number of his cases increases and he becomes more familiar with the operative procedure pertaining to the removal of tumors with many complications. To reach our subject a little more closely, we have made our diagnosis in many cases, and are satisfied that adhesions are present, probably of that variety too strong to yield to the pressure of the sponge or careful use of the hand, that many ligatures will be required, and that possibly adjacent organs may be implicated to the extent that will make the operation exceedingly tedious and dangerous. An exploratory incision is decided upon and which not infrequently confirms our suspicions as to the grade and extent of these adhesions; the patient somewhat, and the friends in particular, are prepared for a severe and tedious operation, the judgment of the operator alone being relied upon to bring the case through successfully. I have not infrequently asked myself the question, when having to deal with such cases, and the patient has been subjected to an operation of an hour, an hour and a half, or two hours, nearly dying, or perhaps doing so within twenty-four or thirty-six hours, from the shock resulting from so prolonged an operation, Would it not have been better to shorten the time in some way, leaving portions of the sac, or the cavity formed from the adhesions to be drained, and thus not carrying our patient too near the condition of exhaustion that results in immediate death? Will not drainage save more patients and bring our cases into a far more comfortable atmosphere of treatment, a larger percentage to go on to permanent recovery, although somewhat tedious, yet not producing that shock and depression upon the friends and neighbors as does death upon the table or a few hours afterward?

Take the following case as one for illustration, although not an ovarian cyst, yet having the form of adhesions to large intestines that I wish more particularly to emphasize in this paper:

CASE I.—Miss McD., aged forty years, unmarried, housewife by occupation, entered St. Peter's Hospital, May 11, 1887, giving the following history: I had had her under observation for nearly ten years, during which time she had enjoyed very good health, with the exception of an enlargement of the lower portion of the abdomen, on the left side. When first noticed it was about the size of a small lemon. This increased very gradually without giving her very much pain at any time. Up to two years ago she had suffered no serious inconvenience,

* Read before the Section in Gynecology and Abdominal Surgery of the First Pan-American Medical Congress.

and at that time I urged her to have an operation. The clinical history, direct physical examination, symptoms, all indicated it to be a case of subperitoneal fibroid, with probable attachment to the left side of the uterus. She had, however, always objected to an operation. During the past two years she has suffered very much more pain and the tumor has increased somewhat rapidly, now, at the present time, filling the entire abdomen, pressing up against the diaphragm, pushing the intestines and contents of the abdominal cavity back into the lumbar regions and behind the liver and above the spleen. One year ago she was quite ill with an attack of localized peritonitis. She is now desirous of having an operation, knowing that the obstruction to the bowels, the pressure upon her stomach, depriving her of food—all of her discomforts convincing her and her friends that in her present condition she can not survive long.

Operation, May 12, 1887.—The tumor was exposed and a distinct pedicle found connected with the left cornu of the uterus, capable of being ligated, but extensive adhesions were discovered connected with the omentum, firmly attached to the ascending transverse and a portion of the descending colon. The tumor was found undergoing cystic degeneration; the loosening of the adhesions became very tedious; it took a long time to free them from their attachment to the tumor, and, in fact, in some places the walls of the tumor were dissected off, hæmorrhage controlled, and the surfaces of the portion of the sac brought together, leaving a mesenteric attachment with the intestine. Glass drainage-tube with gauze packing employed. No hæmorrhage indicated, and but a moderate amount of serum drained.

Operation occupied an hour and a half. Patient recovered fairly well from the effects of the anæsthetic—ether being given—became thoroughly conscious, but died from absolute exhaustion at the end of thirty-six hours.

In the light of experience gathered from other cases since, I realize I could have shortened this operation, bringing a portion of the cyst wall, with the adhesions, into the wound, stitching them there and draining. I know of no other abdominal work that presents with it so great anxiety as the loosening and breaking up of these strong adhesions, particularly when any portion of the intestinal tract is implicated.

Resecting portions of the small intestines becomes possible, yet great care must be exercised here in seeing that the mesenteric attachments are preserved. But when large intestines are involved, resection or anastomosis becomes very much more serious. Adhesions to the solid structures situated in the abdominal cavity give us sufficient anxiety without doubt, but can be managed much more successfully than when we encroach upon the caliber of any portion of the intestines.

It is fortunate for the operator that these cases are not many in number, it is fortunate for us that they are growing less, yet now and then, as I have stated, for some unexplained reason, adhesions form very quickly—much more so in some cases than in others. Some patients have a pain, not particularly distressing to them, not putting them to bed altogether, but it is the pain, nevertheless, of adhesive peritonitis, and we find cases where the clinical history is out of all proportion to the serious adhesions that present. Neglected cases of ovarian cyst will yet present occasionally, and the question seems so pertinent to

us as operators, How far shall we prolong the operation—to what length shall we carry it? Must we not exercise the greatest care in taking into consideration the strength of our patient, and is it not better to cut short an operation and, if possible, drain a portion of the cyst wall, with adhesions, than to pass too many anxious hours in carrying our patient out from the condition of exhaustion, or, sadder still to friends of the patient and interest of operative surgery, witness a death from our overwork in attempting what is really too much for her to bear?

Although this procedure of drainage is a somewhat tedious one, yet I feel I must emphasize that it carries our patient out from the domain of immediate death, and thus does not bring to the friends and relatives that depressed condition of the mind, that aversion they ever afterward have to any form of surgical interference.

Dr. John Homans, as well as many other able operators, has given us a record of cases in which it was found necessary to stitch the sac (owing to the severe adhesions) into the abdominal wound and drain. Can we, however, say, or admit, that our text books have placed sufficient importance upon this line of procedure?

I can not just now give the relative percentage between my cases of drainage and completed operations (but will be able to do so very soon in another paper), yet, to illustrate somewhat more fully my present subject, I desire to speak of the following cases somewhat briefly:

CASE II.—Mrs. O. F., aged forty years, married, housewife by occupation, mother of two children. Presented a very good record of health. Entered the Albany Hospital October 6, 1887, having been seen only recently by Dr. Robert Selden, of Catskill, New York, and who advised an immediate operation.

Records of the hospital state that four years previous she first noticed a tumor located on the left side and supposed to be about the size of a child's head. It grew slowly until June, 1887, and has since then increased very rapidly. Patient has lost much in flesh and strength, bladder irritable, abdomen much distended, tumor fluctuating, and a hard body is felt over the surface of the vaginal vault. Patient has never been tapped. Has received several traumatisms and suffered much from localized peritonitis. An abdominal incision was made and thirteen pints of very offensive liquid pus were removed. The cyst wall was so adherent to the viscera that removal of the sac became impossible, and it was found necessary to stitch the opening in the sac into the abdominal wound by continuous suturing; yet even in doing this it was impossible to hold the sac; it was so friable and rotten that at the point of union, where the drainage-tube was introduced, the cyst wall was lost sight of. Drainage was attempted, but was not so thoroughly successful as could be wished. Owing to some family distress, she was obliged to return home the next day. The wound soon closed after that, and on November 9th her physician, realizing that the sac was filling, aspirated, removing a pint of liquid pus. Between that time and January 23, 1888, she was tapped twice, twenty pints of pus being removed in all. She was now urged to have permanent drainage established and the remaining portion of the cyst washed out, but she was so unfortunately situated that it was impossible to carry out the suggestion. She was aspirated again, but ultimately died from an attack of pneumonia.

This patient, could she have had proper nursing and thorough drainage kept up, I have no doubt would have

made a permanent recovery. I feel quite certain that, had we persevered in attempting to remove the adherent cyst, she would have died early from shock.

CASE III.—Mrs. C. H., aged fifty-five years, married, native of Germany, housewife; residence, Adams, Mass. The patient well as a girl; first menstruated at nineteen; always healthy; has had ten children. Present trouble began seven years ago; at that time the menopause occurred. About three years ago she began to increase, most noticeably about the waist; last summer she experienced pain in the abdomen for the first time. Appetite good, bowels regular. Admitted to the Albany Hospital on December 8, 1889. After careful examination, diagnosis made of ovarian cyst, with probable adhesions due to the local peritonitis she had evidently had. Operation was decided upon and incision made on December 9th in the usual manner; but the cyst was found thoroughly adherent to the parietal peritoneum and to the omentum and large intestines to that extent that it was impossible to remove it. The cyst was stitched into the abdominal wall by continuous sutures, patient making a good recovery. After continuous drainage for about ten weeks the sinus remained permanently closed, and she recovered her health sufficiently to return to her household duties. This patient remained well up to January, 1893, when she again began to enlarge, and now presents with a cyst about half the size of the former one. I am of the impression that the other ovary has taken on a development of cystic tumor, and that we have here an embarrassing situation as to whether it will be possible to remove it, even if it possesses no adhesions of its own.

CASE IV presents a condition bearing more particularly upon this paper—that of Mrs. J. McD., married, mother of several children, a patient of Dr. H. E. Mereness, of Albany, and who gave a history of an abdominal tumor of more than three years' growth. She was a very fleshy woman, and it was exceedingly difficult to make out the diagnosis, yet from the history it was believed she was suffering from either a fibrocystic or a multilocular ovarian tumor. Owing to pressure against the diaphragm, from obstruction of the bowels, and edema of the lower extremities, it was decided to operate. On January 10, 1892, the operation was done. We found a thick cyst wall with three large cavities, containing a brownish-looking fluid, thick in character, like that which we not infrequently get from multilocular ovarian cysts, and, on breaking down the partitions, I was able to evacuate the contents, so as to bring the abdomen down to about its normal size; but I found the most extensive and serious adhesions possible. The large intestines were severely implicated, as were also portions of the abdominal parietes, and, when drawn upon, dented the external appearance of the abdominal wall. With my hand I cleaned out the contents of the cysts as thoroughly as possible, breaking down partitions; brought the edges of the cyst wall up into the abdominal wound, stitched with continuous suture, placed in two glass drainage-tubes, washed out thoroughly with a solution of mercuric bichloride at times, occasionally using carbolic acid, but mostly a solution of boric acid, continued drainage, and in good season had the satisfaction of seeing this patient make a complete recovery, although she was under the careful treatment of Dr. Mereness and myself for a period of between three or four months. She is now well and in every way able to attend to her household duties.

I am certain that, had we gone on and prolonged the operation, this patient would have been placed in serious jeopardy as to her recovery, and I feel that it would really have been impossible to have detached the adhesions.

CASE V.—Mrs. N. O., aged sixty-two years, housewife by

occupation, under the care of Dr. Barry, of Schenectady. Admitted to Albany Hospital on November 11, 1892; married; mother of four children; menopause at fifty; no unusual personal or family history. She says she did not notice any enlargement of the abdomen until a year ago, when she began to increase quite rapidly. Has not suffered any particular pain; appetite very good; some bladder irritation, but the bowels have behaved well. For the past two or three years she has frequently been joked by her friends as to her growing fleshy. Examination of the urine shows the kidneys to be in a healthy condition. No swelling or edema of lower extremities. Pulse about 80, but slight rise in temperature. Operation on November 12, 1892, believing the case to be one of multilocular ovarian cyst. On entering the sac I drew off nearly three quarts of purulent-looking fluid. There were no pelvic adhesions, and I had no difficulty in reaching a fairly good pedicle associated with the left ovary; but, on passing my hand up along the cyst wall on each side and attempting to reach to the superior surfaces of the cyst, I found the adhesions so serious and so firmly attached to the transverse colon as to make it soon evident it would be impossible to loosen them with any degree of safety. I therefore emptied the cyst walls thoroughly well (it really being a multilocular ovarian cyst), closed the openings in the sac, reached the pedicle, ligated it in two places, made a section between the double ligatures, drew the lower portion of the cyst wall well up into the incision, stitched carefully to the abdominal wound, reopened what was left of the cyst, cleaned out thoroughly, placed a glass drainage-tube down in the cavity of the pelvis (it drained quite successfully for three or four days and was then removed); also placed two glass drainage-tubes, packing well around them with iodoform gauze, in the remaining portion of the cyst wall, and then continued thorough drainage afterward. This patient made a good recovery, and is now able to get out and about, enjoying life with much comfort—a great joy to her anxious children.

CASE VI.—Mrs. C. M., aged thirty-seven years, married housewife by occupation, came under my observation on April, 20, 1893, with the following history: Sister died of phthisis at about the age of thirty; otherwise family history good. Patient never strong; has had six children; no miscarriages; always regular in menstruating. Seventeen months ago she had pleurisy, with effusion of left side; was aspirated by Dr. Macdonald, of Schenectady, and, as she said, a large amount of fluid removed. From this she made a good recovery; but about this time she noticed an enlargement of the abdomen. In February, 1893, the abdomen was aspirated and about three quarts of fluid removed. Examination reveals a well-defined tumor in the right side of the abdomen, filling the pelvis and extending up above the umbilicus; fluctuates somewhat distinctly, but gives a sensation of being held firmly in position. Diagnosis was made of tubercular peritonitis, with fluid, probably held in pockets by adhesions, between folds of intestines. Since her last aspiration she has gradually filled, and has lost in strength until now her general health is somewhat seriously affected. Exploratory incision advised, to be followed by permanent drainage. Section made on May 3, 1893. Quite an amount of ascitic fluid was removed, and then an ovarian cyst connected with the right ovary, holding nearly a quart of fluid, was discovered. Here the adhesions to the cæcum and the sheath of the iliac vessels on the right side were so firm with adhesions to the transverse colon and stomach, which were brought down below the umbilicus, that I could do but one thing, and that was to bring the cyst walls up into the incision, stitch, and drain. Drainage was carried out successfully, and the patient has made a good recovery.

CASE VII.—Mrs. L. Y., aged fifty years, housewife, referred

to me by Dr. Moon, of East Springfield, N. Y. Family history exceedingly good; thorough absence of any malignancy or tubercular disease; both father and mother still living and in fairly good health. First menstruated at eleven and has always been regular. Married at the age of twenty-four; never pregnant. Ceased to menstruate at the age of forty. When eighteen years of age was thrown from a horse and thinks she was never quite as well afterward. Had scarlet fever when twenty-three years of age. Fifteen years ago she suffered from some pelvic distress and consulted Dr. Thomas A. Emmet, of New York city, who gave her the diagnosis of fibroid tumor of the uterus, and advised her to let it alone. Eight years ago was thrown from a wagon, striking upon her buttocks and receiving a severe jar. Was weak for a long time afterward, feeling much soreness in what she supposed to be the fibroid; however, she remained in very good health up to December, 1892, when she noticed an enlargement of the abdomen low down and on the left side. March, 1893, this had increased very decidedly. About the 1st of June she had very severe attacks of pain for three days and nights, suffering a great deal, and has since had several such attacks, but thinks they have gradually decreased in severity. She says the growth has enlarged very slowly since she first discovered it. Has suffered much inconvenience from constipation, more especially since noticing this last enlargement. I saw her August 1, 1893; was able to locate a fibroid tumor on the right side of the pelvis low down and about the size of a goose egg; the uterus was drawn up to the left, the broad ligament on that side seemed contracted, and the uterus fixed at that point. Above the symphysis and extending close up to the xyphoid cartilage, filling the lumbar regions thoroughly, could be made out a fluctuating tumor, evidently ovarian in character. I advised an immediate operation in view of her general emaciation, her inability to take much food, pressure upon the kidneys and other important organs being such as to give her great inconvenience and distress. She had remembered thoroughly well Dr. Emmet's advice and was reluctant to have any operative interference, but when the case was fully explained she seemed more willing. She was detained in various ways and did not enter the Albany Hospital until August 29, 1893. After proper preparation, operation was performed the next day, the 30th. I had anticipated meeting with adhesions, her history being in that direction. Had no trouble in exposing the sac and emptying its contents—a brownish looking fluid—but found, as I withdrew about two thirds of the sac, that it was firmly adherent to the rectum, including the sigmoid flexure, dipping down into the pelvis on the left side, and also adherent to the subperitoneal fibroid, which had its relation in connection with the right cornu of the uterus. After thorough examination I found that it would be more than dangerous to attempt to dissect the sac, which was held so firmly by strong adhesions. I therefore stitched the deeper portions of the sac to the abdominal incision, removed that portion which was free, emptied the remaining part thoroughly, being in size not more than would hold a pint, placed in gauze drainage, also a glass drainage-tube to the deepest portion—operation not being a prolonged one. Patient has gone on uninterruptedly with a train of satisfactory symptoms, doing as well as could be desired.

I am fully aware that every operator must, at the time of operating, be the judge as to how far he may go in the removal of tumors associated with strong adhesions. In view of the very excellent system of drainage that can now be employed, in view of the impression that prevails among the friends of the patients that they ought not to die upon the table or from the immediate effect of shock except in

very rare instances, I am prone to believe that we should be somewhat conservative in our course in these cases; yet I am frank to admit that it is much more pleasing to the operator, much more a test of surgical skill, perhaps, to remove all that which he has attacked as a pathological condition, and bring his patient into as normal a state as possible. In carrying out drainage in these cases the patient should be put in the care only of a conscientious, judicious nurse. A glass drainage-tube should be employed and made to reach to the deepest portion of the cyst or whatever remains of the cyst walls and adhesions. A rubber drainage-tube can not be relied upon at first. Gauze packing is much preferable to the latter. We are bound to respect pelvic adhesions when they implicate the sheath of important vessels resting there, and gauze drainage is the safest. Deep-seated pelvic hæmorrhage is not always so easily controlled, and has troubled more than one operator when he has encountered it. No one will deny but that abdominal incisions can certainly be treated with a greater degree of comfort than where the large intestines are implicated.

We have seen much in days gone by as to the use of the thermo-cautery and preparations of iron in controlling hæmorrhage resulting from the breaking up of adhesions, and yet I should like to get the honest expression from the operators of to-day as to how often these two agents are made use of. Ligatures and drainage-tube, in one form or another, beyond a doubt are the best agents we have for controlling hæmorrhage in these cases where we are obliged to separate extensive adhesions. I am not unmindful of sapræmia and septic conditions in cases of incomplete removal of the sac, and I do not want to convey the impression that I would in the least surrender any case that it is possible to make a complete operation in. I am fully aware that drainage carries with it some uncertainty, especially in the effort to get consolidation by collapse of the walls of the sac and where the detritus is to be removed in larger portions from time to time. I would advocate this line of treatment only in such desperate cases as where we feel our patient is likely to be carried beyond the point of possible recovery, and to die in shock because of the too severe tax made upon the weakened vitality of the system. These cases of drainage require the utmost care and watching as to general treatment, diet, sanitary surroundings—all becomes of the greatest importance where the necessity of drainage is the only method of procedure.

28 EAGLE STREET.

PHARYNGEAL VOICE:

ILLUSTRATED BY PRESENTATION OF
A PATIENT WHO PHONATES WITHOUT A LARYNX
AND WITHOUT THE USE OF HIS LUNGS.*

By J. SOLIS-COHEN, M. D.,

PHILADELPHIA.

We are all aware that every now and then Nature has ways of restoring a function that has been destroyed by

* Read before the American Laryngological Association at its fifteenth annual congress.

disease or surgical procedure in a manner which is very surprising and unexpected. I show you a very remarkable instance of that in this patient, from whom, fourteen months ago, I removed the larynx (leaving the epiglottis) and the first ring of the trachea for a cylindrical epithelioma. The case was reported to this association last year, shortly after the operation. In order to prevent as much as possible a septic pneumonia, I stitched the trachea to the skin by several sutures of silk, and since then there has been no communication whatever between the trachea and the mouth. Some months after the operation I found that the man was able to make a clucking sound. I encouraged him in this as a factor in making himself understood, and he has succeeded to a wonderful extent. His larynx should be here; it was sent by express from Philadelphia yesterday and ought to have been delivered this morning, but it has not yet arrived. I will ask this man to speak to you in a few moments, and you will notice then that he swallows the air and a little bag of skin is formed in the neck just above the tracheal orifice, which is utilized as the motive power of phonation. Where his voice comes from I do not know positively. He says it comes from down here, below, just above the bag of air in the neck. In all probability the constrictor muscles of the pharynx are utilized as phonating reeds set in vibration by the air as it escapes from the sac in the neck. I have examined the patient carefully while phonating time and again, and know positively that the new phonating reeds are not the posterior palatine folds, as I thought at first, nor are they the epiglottis and a transverse fold of the posterior wall of the pharynx. Dr. Lefferts, who removed a papilloma from the man's larynx eighteen years ago, says he thinks the man phonates with the tongue and lips; certainly not with the epiglottis. He can produce the sounds while the laryngoscopic mirror is in position, and the voice does not come from the region of the larynx. His voice is modulated much better than it would be by any artificial instrument.

Another curious feature of the case is this: After the operation a slight fistula remained in the track of the wound. In order to close it I inverted the skin and fastened it together, and on those inverted flaps of skin the hairs of the beard have continued to grow. Upon examining the man, you will see that along the line of the cicatrix is a white stripe to which my attention was first called by my assistants, who thought it might denote a recurrence. I am satisfied now that there is no recurrence, but that the epithelial tissue is undergoing some change. This man sleeps without any tube. The manner in which the trachea is united with the skin dispenses with the necessity for a tube. He prefers to wear it during the day, because it gives him some support, and he speaks better with it. It seems to give a fulcrum from which the expulsion of air from the sac is better controlled. After the operation I nourished this man *per rectum*. I stitched the trachea forward as you see, and during the two weeks of treatment kept the bed tilted so that the head was lower than the shoulders, and the fluids, by gravity, went out of the wound instead of down into the lungs. There was no dressing whatever applied to the pharynx; not even a bit of gauze.

Shortly before, I had a case with Dr. Gleitsmann which terminated fatally, in which the patient was very much troubled with efforts to swallow by reason of the packing in his pharynx. In this case I saved the patient from that trouble. The wound was loosely brought together with stitches and allowed to granulate. There has been no pain since the operation.

CREASOTE

IN THE TREATMENT OF PHTHISIS PULMONALIS.

By FREDERIC M. WARNER, M.D.,

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The administration of creasote to patients suffering from pulmonary phthisis is now an established therapeutic measure. The benefit to be derived from the proper employment of this drug is unquestionable. Beverley Robinson, with whose name we instinctively associate this method of treatment, expresses himself in his latest contribution* on the subject thus:

"With an additional and broader field of experience the results obtained have not become more doubtful; on the contrary, they have been confirmed and strengthened."

During a somewhat extensive employment of this remedy in phthisis for the past four years, both in hospital and in private practice, I have watched with great encouragement the steady gain in the results obtained; but it has been only during the latter half of the time that the positive value of creasote as an agent for combating most powerfully the effects of this disease has been made apparent.

Formerly my custom was to administer the drug in small doses, exceptionally giving more than six or eight minims daily. During the last couple of years, however, the doses have been largely increased with correspondingly better results.

An explanation of the favorable action of creasote has as yet not been given. Coret's experiments on guinea-pigs yielded negative results. It seemed to have no influence on the infection of these animals with tubercle bacilli. He ascribed the favorable effects to its action in lessening the bronchial secretion and improving the appetite. Summerbrodt and many other observers, however, believe in the distinctly curative value of the remedy.

It is my rule to administer creasote in the following manner: Beginning with one minim three times daily, I increase one minim each day until the limit of tolerance is established, watching the effect of the drug upon the stomach and bowels and causing a daily examination of the urine to be made.

The cases under observation in which creasote has been employed have, as a result of the treatment, presented certain features common to all and quite characteristic.

The general condition of the patient, as a rule, rapidly improves; in some cases the appetite is better, the cough at first becomes less during the daytime, while remaining

* *Medical Record*, Feb. 27, 1892.

quite as before during the night; after a time, however, it also lessens at night. If the sputum has been tinged with blood, this condition disappears, contrary to what might be expected, as creasote is said to congest the bronchial mucous membrane; and while at first the sputum is not much lessened, if at all, its character is changed; from being thick and yellow—muco-purulent, in fact—it becomes thinner, frothy, and contains less solid matter. In no case where previously attacks of hæmoptysis had occurred have they taken place after the creasote treatment has been established. The night sweats grow less and in many cases entirely disappear, and after a while there is a total absence of the daily fever. The weight of the patient always increases at first, then is apt to remain stationary, and in exceptional cases may lessen, and then a gradual increase takes place. The first increase in weight is no doubt due to the improvement in appetite and in the greater ability of the patient to properly assimilate the food consumed.

In other cases, although at first there may seem to be an improvement in the general symptoms, yet the extent of the lesions preclude any definite or marked bettering of the patient's condition.

In any case I have been much struck by the change in appearance of patients who have been on this treatment for some time. The facial expression is very different, the gain in weight, the absence of hectic, the feeling of improvement in the physical condition, all undoubtedly exert a marked effect psychologically, which is unmistakably stamped upon the patient's face.

Administration.—A certain familiarity with the employment of creasote in the treatment of phthisis pulmonalis has taught me that the indication is to saturate the patient as far as possible. We need to get something more than a tonic effect; we want the specific action of the drug, whether it be upon the micro-organism or upon the poisonous secretion, or whether it acts by rendering the soil unsuitable for the growth and development of the bacilli; or whether the effects are due to an improved nutrition. The great objection urged against the administration of antiseptic substances by the mouth has, been that the drug can not be absorbed in sufficient amount to effect the purpose.

I think, however, that the exhibition of creasote in doses small at first and gradually increased meets the point. I have personally, in several cases, demonstrated the fact that very large amounts of creasote may be retained without discomfort—one patient reaching a daily amount of two hundred and fifteen minims—while many clinicians have given as large or greater amounts.

Without doubt a valuable aid to the internal administration of creasote will be found by the coincident employment of *antiseptic inhalations*.

Harris* has reported one hundred and fifty cases treated by means of "instillations." These consist of a number of volatile antiseptic substances, which are placed on the sponge of a naso-oral inhaler and through which the patient respire. This treatment is instituted several times daily and the results obtained have been most satis-

factory; and this investigator urges careful and prolonged trial of what he calls "the most reasonable method short of inoculation for introducing antiseptic substances into the lungs." He thinks that this method of medication is especially valuable after the disease has advanced beyond the first stage. Iodoform is the drug which he has principally employed.

My custom is to use creasote combined either with terebene or ether in a fifty-per-cent. solution, ten or fifteen minims dropped on the sponge of a Robinson's inhaler, and employed every second or third hour, and in some instances where marked benefit has been derived from the employment of this measure the respirator has been worn almost constantly.

At various times I have tried the effect in a large ward of the City Hospital of allowing an antiseptic mixture to simmer gently over a low fire during the night time. This mixture generally consists of oil of eucalyptus, carbolic acid, and turpentine. A drachm each of the first two and two drachms of the last are put in about a quart of water in a shallow dish and heat applied. The effect is to fill the ward with a pungent aromatic vapor, which has a markedly sedative action, it being noticed by the nurses in attendance that the coughing is not nearly so general or frequent.

Inoculation.—It has been urged by many that the most direct method of dealing with the tubercle bacilli or their virus is by inoculation. I have not been able, however, to employ creasote successfully in this manner, although I have frequently tried subcutaneous injections of the remedy in sterilized oil, with the result of causing so much local disturbance that to continue has been impossible.

Creasote Poisoning.—In regard to the ill effects of the drug I have not much experience; there is no doubt that the maximum dose of creasote varies greatly in different subjects; in my experience, a few patients have not been able to tolerate even the small initial doses, complaining at once of nausea, vomiting, and gastric pain. As a rule, these patients have been hysterical women upon whose statements I could place no definite reliance, but have always discontinued the use of the remedy upon the complaint.

Occasionally during a course of treatment patients will experience attacks of diarrhœa, slight in character, easily controlled by large doses of bismuth and by holding the amount of creasote at the number of minims of the last dose before the attack of sickness, until the symptoms of intestinal disturbance are past, then proceed to increase one minim daily, as before.

In other cases undoubted irritation of the stomach and bowels was produced by the employment of creasote, and in all cases where this occurred, and the symptoms did not abate after twenty-four hours, I commenced to diminish the amount of the drug one minim daily until the point was reached where it could be tolerated.

In some instances I have noticed marked head symptoms—dizziness, pain, and double vision—all of which disappeared under diminished doses.

In no cases have I noticed the slightest change in the

* St. Barth. Hosp. Reports, vols. xxv and xxvi.

urine from patients under treatment with either large or small doses, although daily examinations of the urine are made, but I should hesitate to advocate the employment of creasote in cases of phthisis when there was already existing renal disease.

It is true that many patients can not take large doses; for example, my attention was called recently to a young woman who was taking only six minims three times daily, when she was attacked by nausea, vomiting, and slight diarrhoea, together with headache and vertigo, accompanied by a sense of great weakness, which persisted. There seemed to be an entire absence of hysteria. Diminished doses promptly caused a subsidence of bad symptoms, and after a short period of rest I shall try once more to increase the amount.

Among the many cases which I have had and still have under observation, very few have reached their dose limit.

CASE I.—A. B., female, aged thirty-five, phthisis both apices, second stage, had reached a daily maximum dose of eighty-seven minims, with manifest improvement in all the physical signs—a cessation of night sweats, of hemorrhages, much lessening of the cough and expectoration, a considerable increase in weight—when suddenly she began to experience nausea and vomiting, slight continual headache, vertigo, trembling in the extremities, and slight difficulty in vision. These symptoms continued for several days while the daily dose of creasote was kept the same, without any increase; then, as there was no improvement in the symptoms, it was evident that she had exceeded her limit of dose, and in order to arrive at the amount that she could safely take, the daily dose was diminished one minim. When the number seventy-eight was reached, the toxic symptoms, which had been gradually subsiding, entirely disappeared, and the patient was held at this amount, which was believed to be the maximum daily dose that she could tolerate.

The following case is interesting from the fact that it shows so well the distinct gain while under treatment, the loss while the creasote was stopped, and the improvement after the treatment was begun again:

CASE II.—W. F., male, aged forty-nine years at the time of commencing treatment, March 30, 1892, had a cavity at right apex, with large and fine râles over both lungs.

June 16th.—He felt so much better that he insisted upon going out of the hospital. At this time there was a marked improvement in the physical signs; his weight was exactly what it had been at the beginning of treatment—one hundred and twenty-one pounds; the appetite was good, the cough and expectoration had greatly decreased, and he was getting a daily dose of sixty minims of creasote.

August 8th.—He was readmitted to the hospital.

Physical Examination.—General emaciation, depression marked above both clavicles. Percussion: dull above both clavicles, tympanic below right. Auscultation: bronchial breathing heard over left lung, with many fine and some bubbling râles; expiration prolonged; cavernous breathing over apex of right lung; bronchial with fine râles over base. Posteriorly, bronchial breathing and fine râles over both lungs.

At this time also there had developed a laryngitis, and there was much cough and mucopurulent expectoration and night sweats.

The patient was at once put on the creasote treatment again

with excellent effect: diminution in the cough, night sweats, and amount of expectoration, and an increased weight as follows: August 8th, 115 pounds; August 19th, 118 pounds; August 27th, 118 pounds; September 1st, 117 pounds; September 23d, 123 pounds.

On the date of the last weight the patient was getting forty-one minims of the creasote, and suffered no inconvenience therefrom.

CASE III.—M. G., male, aged thirty-five years; phthisis both apices, second stage. Began creasote treatment April 28, 1892. Patient had been ill about six months, had lost much flesh, profuse night sweats, hectic, and considerable mucopurulent expectoration.

He rapidly improved in every respect under treatment until July 27th, when he complained of nausea and a little diarrhoea; at this time his daily dose of creasote was ninety minims; through an error the medicine was stopped, and my attention was not called to the case until a week or ten days afterward, when, as such a length of time had elapsed, we were obliged to recommence with small doses, increasing two minims daily.

His record of weight is as follows, and shows well the steady improvement up to the time that the creasote was stopped, then the drop during the period of interruption, and the constant improvement afterward: May 31st, weight 131 pounds; June 6th, weight 131½ pounds; June 11th, weight 134 pounds; June 14th, weight 132½ pounds; June 18th, weight 135 pounds; June 22d, weight 134 pounds; June 27th, weight 131 pounds; July 11th, weight 137½ pounds; July 16th, weight 137 pounds; July 19th, weight 137 pounds; July 23d, weight 137 pounds; July 25th, weight 139 pounds; July 27th, creasote stopped; August 8th, resumed, weight 135 pounds; August 15th, weight 138 pounds; August 19th, weight 141 pounds; August 22d, weight 142 pounds; August 27th, weight 140 pounds; September 1st, weight 144 pounds; September 23d, weight 146 pounds; October 10th, weight 146½ pounds.

When this patient left the hospital on October 10th there was a marked improvement in his case. There had been a steady amelioration of all the conditions existing at the time when the treatment was begun; besides the gain in weight of fifteen pounds and a half, the night sweats had disappeared, as well as the hectic; the cough was hardly present, except at night, troubling him but little; slight expectoration, and with good appetite.

Physical Examination.—In front on right side over apex and upper part of upper lobe, bronchial voice; over corresponding area behind, bronchial voice and breathing, no râles.

This patient returned to the hospital on December 6th. Having been half starved and having had no creasote, his weight was 144½ pounds, but there was no appreciable difference in the physical signs. His general condition improved and he left the hospital against advice January 16, 1893. Weight, 146½ pounds, and with the condition of the lungs apparently the same.

Glascow* says that he finds it beneficial to intermit the treatment for a week or ten days when patients have taken large doses for some time. I do not see anything to be gained by it, and Case III shows a distinct loss in weight during the periods of enforced abstinence from the drug, which must necessarily be taken as indicative of impaired nutrition, if not of a retrograde condition in the lung.

* *The Climatologist*, June 15, 1892, p. 295.

CASE IV.—W. K., male, aged thirty-nine years; phthisis second stage. Was put on the treatment February 25, 1892, with the result that the night sweats disappeared, but a slight cough remained, the pain in the chest vanished, the sputum became slight in quantity and thin and frothy. On July 25th examination revealed only an occasional fine subcrepitan râle heard on right side over suprascapular region; the patient declared that he was well and insisted upon leaving the hospital. At this time his daily dose of creasote was ninety minims and the record of weight as follows (the weights previous to May 23d were lost):

May 23d, weight 125 pounds; June 3d, weight 127½ pounds; June 11th, weight 127½ pounds; June 18th, weight 131 pounds; June 27th, weight 131½ pounds; July 11th, weight 131 pounds; July 19th, weight 133 pounds; July 25th, weight 131 pounds.

CASE V.—J. D., male, aged thirty-four years; phthisis, second stage, with much expectoration, continual cough, dyspnoea upon slight exertion, night sweats, loss of appetite and strength. Had been sick about a year, and during past seven months had lost eighteen pounds in weight. On July 28th commenced taking creasote. September 1st the daily dose had reached twenty-five minims, with a diminution in all of the bad symptoms and the following record of weight, which is particularly worthy of note from the fact that before beginning the treatment with creasote the loss in weight had been so steady and marked:

August 15th, weight 146 pounds; August 19th, weight 143 pounds; August 22d, weight 149 pounds; August 27th, weight 149 pounds; September 1st, weight 151 pounds; September 12th, weight 152 pounds.

On this last date, September 12th, with a daily dose of thirty-five minims, the patient felt so well that he left the hospital at his urgent request to be allowed to get to work.

I regret that the copies of the results of the physical examination in this case are lost.

Without going into details of cases, I append a list from my notes at random of patients in the first and second stages of phthisis, with the amount of creasote taken daily and the result with reference to the weight alone.

Name.	Beginn.	Ended.	Weight.	Amount.
G.	May 25.	July 23.	127-130 lbs.	48 minims.
R.	May 22.	June 23.	123-120 "	45 "
H.	June 2.	June 23.	134-131 "	32 "
H.	April 14.	July 15.	155-175 "	103 "
O'B.	May 25.	July 23.	133-133 "	104 "
D.	July 15.	Dec. 16.	118-117½ "	65 "
McK.	May 23.	Jan. 16.	142-145 "	57 "
K.	Sept. 27.	Oct. 7.	110-112 "	11 "
V.	Oct. 4.	Dec. 16.	120-127½ "	45 "
D.	Oct. 14.	Oct. 22.	146-152 "	10 "
P.	Oct. 18.	Dec. 26.	152-152 "	80 "
McG.	Sept. 14.	Jan. 16.	133-132 "	53 "
L.	Nov. 1.	Dec. 26.	125-148 "	60 "
A.	Nov. 3.	Dec. 14.	106½-122½ "	43 "
McF.	Nov. 17.	Jan. 16.	119-120 "	43 "
S.	Dec. 9.	Jan. 16.	146-148 "	27 "
N.	Dec. 28.	Jan. 16.	157½-164 "	8 "

The foregoing are a few of the cases of which the notes are more or less imperfect, and the table merely helps to show that, as a rule, patients in the early stages of phthisis are markedly benefited, at least in weight, by large and increasing doses of creasote; and where the body increases in weight the destructive process in the lungs is at least not extending. It is true, as I have before said, that some pa-

tients reach their maximum dose early; for example, my attention was called recently to a girl who had reached a daily dose of only eighteen minims, when nausea and vomiting, with slight diarrhoea, vertigo, and headache, accompanied by a sense of great prostration and weakness which persisted, warned me that her maximum dose had been exceeded, and she is now being given one minim less daily, with a gradual diminution of the bad symptoms.

In hospital cases a factor which must be taken into consideration while studying these cases is what part in the general improvement in the patient's condition may be referred to the regular hours and better food than most of them are accustomed to at home? The answer to this I think will be found by referring the inquiries to the phthisical patients inhabiting wards in any general hospital where the routine treatment of sedative cough mixture, cod-liver oil, and poor whisky is followed. In how many of these cases is there marked increase in weight and corresponding improvement in the physical signs of the chest?

A question which is frequently asked in reference to this treatment is regarding the presence of the tubercle bacilli in the sputum—whether or not this method diminishes their number. I can only say that in the cases where the sputum was examined the bacilli did not disappear; unfortunately, however, in many of the hospital cases no examinations were made.

In reference to the mode of administration of the drug it has not seemed to make much difference. I generally order it to be taken after meals in milk or sweetened water or wine, or in combination with a bitter, such as cinchona or gentian, or in a little whisky and water.

From the results obtained I have a strong belief in the present and future value of creasote in the treatment of pulmonary phthisis.

66 WEST FIFTY-SIXTH STREET.

SALIVARY CALCULI,

WITH REPORTS OF CASES.*

By CLINTON WAGNER, M. D.

ALTHOUGH cases of salivary calculi are of very infrequent occurrence, still quite a number of cases are on record. The first of which I have found mention dates more than two centuries back. In my practice, extending over a period of more than thirty years, I have had only three cases, and assisted in the operation for the removal of a fourth at a clinic with which I was connected.

These concretions are formed by the deposit of earthy salts (chiefly the phosphate of calcium) from the saliva in the excretory ducts leading from the gland or in the body of the gland itself, in which case the pain is greater and the removal of the calculus more difficult. The cause of the deposit is an obstruction to the flow of saliva either to or through the excretory duct. I do not think that the gouty or rheumatic diathesis is a factor in the development of the concretions.

* Read before the American Laryngological Association at its fifteenth annual congress.

They are most frequently found in the sublingual gland or its excretory duct, the duct of Bartholin, and may be recognized by a tumor under the tongue on one side or the other of the frænum; it is sensitive upon pressure and is sometimes but not always fluctuating. If the body is lodged in Wharton's duct, in addition to the sublingual tumor there will be enlargement of the submaxillary gland; non-enlargement of this gland indicates that the concretion is lodged in the duct of Bartholin. The concretions are sometimes found in Stenson's duct, in which case there will be enlargement of the parotid gland.

The subjective symptoms are pain and difficulty in mastication and deglutition, with more or less impairment of speech. When the parotid and submaxillary glands are inflamed from the presence of these bodies the pain at times is agonizing.

In a case of suspected calculus in a sublingual tumor where there is fluctuation, a free incision should be made in order to give vent to the fluid contents; the calculus, if there is one, will probably be released from the duct and will escape through the opening made by the knife. If the tumor is solid and firm, a small opening should be made for the introduction of a very fine probe, with which an exploratory examination may be made; if a calculus is felt, the incision should be freely enlarged and a small forceps introduced with which it may be seized and removed. I think that many of the so-called cases of ranula are caused by small calculi impacted in the duct of Bartholin. When the calculus is imbedded in the substance of the submaxillary gland its removal is attended with great difficulty.

Dr. J. Mason Warren, of Boston,* attempted the removal of one by external incision and failed; he finally reached it by incision through the mouth and removed it piecemeal with a small polypus forceps, the patient having first been put under the influence of ether.

In the first case of salivary calculus that came under my treatment the patient consulted me about twenty-three years ago, a man aged forty five years. He stated that three years before coming to me a swelling began under his tongue which slowly increased in size. At the time of consulting me it was painful and interfered greatly with speech and mastication. The tumor was fluctuating and on the right side of the frænum. I made a free incision, from which escaped about half an ounce of a viscid, semi-transparent fluid and a calculus. There was no enlargement of the submaxillary gland. The concretion had lodged in the duct of Bartholin. It weighed eight grains and was composed mainly of phosphate of calcium and organic matter. I sent it to the Army Medical Museum at Washington, and it is numbered 5,735, Section 1, in the collection.

CASE II.—Colonel W., aged sixty-five years, a retired officer of the army, stated that for over two years he had experienced pain and discomfort from a swelling under his tongue, with an enlargement externally. An examination disclosed a sublingual swelling to the right of the frænum, and also enlargement of the submaxillary gland of the same side. No fluctuation could be detected in the sublingual tumor; on the contrary, it was firm and quite sensitive upon pressure. Suspecting a calculus in Wharton's duct, I made a small incision, and after a careful exploration with a fine probe I detected a hard body;

and upon enlarging the incision I had no difficulty in seizing and removing a small calculus weighing seven grains. The sublingual swelling disappeared with the removal of the concretion, but the submaxillary enlargement remained. Several weeks later I introduced an exploratory needle into the body of the gland through the mouth, but did not discover another calculus, as I thought might possibly be the case. The swelling of the gland, I learned afterward, disappeared in course of time.

CASE III.—Mrs. B., aged thirty-six years, applied for treatment at the Metropolitan Throat Hospital. She stated that for eighteen months she had been annoyed by a swelling under her tongue which was painful and interfered with mastication. An examination revealed a firm, hard tumor, sensitive upon pressure, and to the right of the frænum; there was no enlargement of the submaxillary gland. An opening was made sufficiently large to admit a small fine probe, and after a few minutes' careful search a hard body was felt. The incision was enlarged and a small calculus removed from the duct of Bartholin weighing four grains.

Some years ago at the London Throat Hospital I had an opportunity of examining and assisting in the operation for the removal of a very large calculus from the duct of Steno. As it is the largest salivary calculus on record, and as the report of the case has not, that I am aware of, been republished in this country, I quote it in full:

Salivary Calculus removed from the Orifice of the Parotid Duct. By John C. Thorowgood, M.D.*

J. K., aged seventy years, presented himself for treatment at the Hospital for Diseases of the Throat. An examination discovered a tumor of the size of a large walnut at the ramus of the inferior maxilla on the right side, very painful on pressure and accompanied with difficulty in deglutition and articulation, slight dyspnoea, and inability to open the mouth widely.

He gave his history as follows: The swelling was first noticed twelve years ago; there has been discharge of pus into the cavity of his mouth, and about four years ago an abscess pointed and discharged externally. He states that he has attended various hospitals, but the presence of the calculus was not detected, attention having only been directed to the external abscess and swelling.

Dr. Prosser James, on examining the mouth, observed a small white circular patch, about a fourth of an inch in diameter, lying external to and near the ramus of the inferior maxilla. When touched with the finger, acute pain was felt by the patient, and having arrived at the conclusion that it was a concretion, Dr. Prosser James, with the assistance of Dr. Clinton Wagner, proceeded to remove it by dividing the firm structures which grasped it by means of a curved bistoury and then withdrawing the mass with the forceps. The cavity in which it had lain was felt by the finger to be quite empty, and in a week the man came back expressing himself to be quite comfortable, able to take solid food, and beginning already, he thought, to regain some of his lost flesh.

The calculus now exhibited weighs ninety-three grains and a half, is an inch and an eighth long and two inches round, and is composed mainly of phosphate of calcium.

The Richmond Academy of Medicine and Surgery.—The special order for the next meeting, on Tuesday evening, the 14th inst., is a discussion on General Neuritis, to be opened by Dr. H. H. Levy.

* *Surgical Observations*. J. Mason Warren, M.D., Boston, 1867.

* *Transactions of the London Pathological Society*, vol. xxiii, 1872.

THE RELATIONS OF THE HEART AND LUNGS TO THE ANTERIOR CHEST WALL, AS DETERMINED BY COMPOSITE PHOTOGRAPHY.*

By IRVING S. HAYNES, Ph. B., M. D.,

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THE study of the relations of the heart and lungs to the anterior chest wall is of the utmost interest to us, not only as anatomists searching after the exact relations of the various parts of the human body, but also as surgeons and physicians engaged in the treatment of these organs in their various morbid states; for how can a departure from the normal relations of the body be detected unless we are familiar with those relations?

It is practically impossible to determine the surface relations of the heart and lungs in the living except in the most general way, and we are forced to study out the problem upon the cadaver.

After we have obtained our post-mortem measurements we can not apply them indiscriminately to the living individual. Due allowances must be made for the constantly changing positions of the heart and lungs with every pulsation of the former and respiration of the latter, for the changes caused by the different positions assumed by the individual or produced by the states (physiological or pathological) of the neighboring viscera (stomach, liver).

The varying thickness of the superficial tissues and the sexual peculiarities of the chest and mammary configuration must also be taken into account.

Notwithstanding all these difficulties with which we must contend, our post-mortem results do admit of the most practical application, and when the necessary corrections of age, sex, posture, etc., are made, become of such reliability as to deserve our confidence.

Of the methods heretofore employed for determining the surface positions of the heart and lungs I will speak briefly of two—namely, transfixion and frozen sections.

Transfixion by long pins is a method subject to many sources of error, and in the end becomes a good deal like guesswork; for, unless the differences between the positions of the pins and the actual position of the viscera under consideration are correctly taken and referred to corresponding points upon the chest, the results from this method will be too uncertain to be depended upon.

Frozen sections carefully made, as directed by Professor Thomas Dwight, will give correct results, but the method is very laborious, takes a great deal of time, can be used only at a certain season of the year, and then only in favorably situated places.

In the face of these difficulties and with the confusion of mind following a hasty comparison of the measurements given in some of the standard text-books, I cast about for some way of determining these relations for myself rapidly, accurately, easily, and without reference to place or season,

and thought of my camera as a faithful agent to fulfill these diverse requirements.

Composite photography has been applied to the solution of other problems, but I think I am the first to apply it to the determining of the external relations of the heart and lungs. I began my experiments in May, 1893, and would say in this connection that I have applied the same method to solving the abdominal relations with most satisfactory results, which I hope to be able to present to the society at some future occasion.

Before entering upon a description of composite chest photography I wish to digress for a moment to offer a few comments upon the text-book literature of the subject and to make a plea for greater exactness in such works.

I do not contend that the statements of the various authors must agree with one another—that is impossible from the very nature of the subject—but I wish to object to the sweeping general statement that on close study furnishes us with so very little reliable information. As an example of this style, I quote the following *verbatim* from a text-book of anatomy: "The heart lies upon the tendinous center of the diaphragm, its base presenting upward and backward, and its apex pointing at the junction of the fifth rib and cartilage." And this is all there is in the entire volume respecting the location of such an important organ as the heart.

Again, I wish to call attention to rules apparently so exact but really hiding many perplexities, and for the first illustration I shall quote with all respect from that storehouse of anatomical information, *Quain's Anatomy*, vol. ii, 9th American edition, page 493, the following: Speaking of the left border of the heart and where to draw its outline upon the chest, he says it is indicated by a "line from the third cartilage," etc. Now, the third cartilage is anywhere from an inch and a half to two inches and a half long and about three quarters of an inch wide. How can such an area be the starting point of a line?

One more: Quain and Gray both give the base of the heart as a line "drawn across the sternum on a level with the second costal cartilages." Might we not with propriety ask, Is the upper border, or the center, or the lower border of these cartilages meant?

Many errors in our books are excusable, but I offer that in text-books, primarily intended for students and designed to be as concise and accurate in statement as is consistent with brevity, serious omissions should not be covered by a few generalities, nor should "points" mean any dimension of length up to an inch, or of surface from its proper definition up to an area of one or two square inches.

Again, we meet with difficulties in the application of these statements, however accurate, to the individual. For while in a thin person it is easy enough to recognize cartilages and ribs, when these landmarks are covered with even a moderate layer of fat their recognition becomes uncertain, to say nothing of locating the costo-chondral and chondro-sternal articulations. If I might offer a plan to assist in fixing the relations of the thoracic viscera to the exterior of the chest in connection with the usual landmarks of sternum, ribs, cartilages, and their articulations,

* Abstract read before the Sections in Anatomy and General Surgery of the First Pan-American Medical Congress.

I would suggest that we start from the supra-sternal notch and mark the distance to below the ensiform along the median line in inches or centimetres, and the distance of points transversely to the right or left of this line to be given with the distance on the mid-sternal line (from the supra-sternal notch), from which the lateral lines are drawn.

For example, the apex point in Subject I is two inches and a quarter transversely to the left of the mid-sternal line at its seven-inch point—i. e., at the point seven inches from the supra-sternal notch.

No matter how thick the layer of adipose tissue is over the chest, and how obscure the cartilages and ribs in consequence become, the supra-sternal notch can always be accurately determined by the same manoeuvre, only reversed, by which the anterior superior iliac spine is fixed—namely, by carrying the thumb from above downward into the notch until it comes in firm contact with the upper margin of the sternum, and from this point make the downward measurement.

The measurements to right or left must always be made at right angles to the mid-sternal line.

Source of Error.—Of course all chest walls and their contained viscera do not have the same dimensions, and it would be obviously incorrect to apply the results obtained from a large subject directly to a small one, yet after the measurements for the average male and female adult are obtained these can be applied to the determining of similar points in the average person and the extremes of our scale in the one case to the extremes in the other.

Perhaps we can subsequently determine a certain ratio between the chest measurements and its circumference, or some other representative measurement that will help us to overcome the above source of error, but my experiments have not yet been sufficiently numerous to justify the formulation of any reliable suggestion in this connection.

Directions for taking the Composite Chest Photographs.—Place the subject perfectly horizontal and inject carefully through the carotid (right or left) a thin plaster mixture (colored if desired) to moderate fullness.

Some subjects should be used without the injection; but the injection, when moderately given and after it has firmly set, serves to maintain the heart in a fixed position and is consequently an advantage. Moreover, by distending the heart moderately, as is usually the case, its natural position in diastole will be closely approximated (Subject I); and in those instances where the injection does not fill the ventricles and they happen to remain firmly contracted, you will secure the heart in a state closely allied to its condition during systole (Subject II).

Locate the position of the nipples with reference to the ribs and the mid-sternal line as previously described, then carefully incise them through their center to the deep parts and mark such places with an aniline pencil so they may be found later on.

Remove all superficial tissue and muscles (pectorals and abdominal) over an area sufficiently large to expose the entire chest from above the clavicles to below the lower ribs—and from side to side—as far as the anterior axillary

lines. Expose the trachea, cut it in two below the thyreoid cartilage, insert a rubber tube into it, and connect with the bellows or pump.

Thoroughly clean the ribs, cartilages, sternum, external intercostal muscles, clavicles, and the origin of the sterno-cleido-mastoids.

Now place a narrow tape measure or a strip of white paper, upon which the inches have been marked, from the upper margin of the sternum (supra-sternal notch) along the middle line to below the ensiform appendix.

Upon each cartilage and rib indicate the distance in inches, measured transversely from the mid-sternal line, by narrow strips of paper as long as the cartilage or rib is wide and placed vertically upon the same to the number of four or five on either side of the middle line. These strips of paper will help very much in determining the position and direction of the various ribs and cartilages.

Set up the camera vertically over the subject, focus on the nipple points (indicated by small circles of white paper), and fix the focus with the set-screw.

You will need two double plate holders, A and B, and very slow plates, numbering the slides A, 1 and 2, B, 1 and 2.

Take the chest in expiration on plates A, 1 and 2 (expiration, first exposure). The time of this exposure must bear the ratio to the full exposure of about one to three.

Inflate the lungs to moderate distention, counting the number of bellows or pumpfuls, and expose plates B, 1 and 2 (inspiration, first exposure). Let the air escape from the lungs.

Remove the sternum from the lower level of the first cartilage to the upper of the seventh, the included cartilages and ribs for a distance of four to five inches from the median line. Do not open the pleure.

Now inflate the lungs with the same number of bellows or pumpfuls as before.

Expose B, 1 (inspiration, second exposure, pleure not opened). Open the pleural sacs and remove their anterior portions. Expose B, 2 (inspiration, second exposure, pleure removed). Allow the air to escape from the lungs. Expose A, 1 (expiration, second exposure, pericardium intact). Remove the presenting portion of pericardium from heart and great vessels. Expose A, 2 (expiration, second exposure, pericardium removed).

These photographs* will give you the position of the lungs, with and without their pleure, and of the heart, with and without its pericardium, upon the chest wall, from which the necessary measurements can be accurately determined.

By the preceding method the following relations were obtained.

SUBJECT I.—Adult, male, negro, apparently about thirty-five years of age. Cause of death unknown. Subject

* When a border of the heart or lungs is said to cross a cartilage or intercostal space at a certain distance from the median line, the measurement is always made from the center of the cartilage or space, unless otherwise stated.

had been injected with chloride of zinc and starch-colored mixture originally for another purpose, but was used for this experiment.

A. *Nipples*.—Located over the lower half of the fourth rib, three inches and a half transversely from the mid-sternal line (and at a point on that line five inches from the supra-sternal notch); both alike.

B. *Heart*.—This organ had been distended by the injection and approximately represented the heart in diastole. Its relations were as follows:


1. *Base*: This is taken as the upper limit of the heart. It is indicated by a line drawn across the sternum from just below the middle of the second intercostal space on the right side an inch and a quarter from the mid-sternal line (at its three-inch point) to the left to cross the median line (at the two-and-three-quarter-inch point) and end at the upper portion of the second left space an inch and a half from the mid-sternal line (opposite its two-and-five-eighth-inch point).

2. *Apex*: Behind the center of the fifth interspace two and a quarter inches to the left of the median line (at its seven-inch point.)

3. *Left Border*: From the left extremity of the base line downward and slightly outward to cross the third costal cartilage two inches from the mid-sternal line (at its three-and-five-eighth-inch point). It continues downward and outward until the fourth interspace is reached, then turns inward as it passes to the apex point.

This line crosses the fourth left costo-chondral articulation, which is two inches and three quarters from the mid-sternal line (opposite its five-inch point), the fourth interspace, at the center of which it is two inches and seven-eighths from the mid-sternal line (at its six-inch point); from here it curves downward and inward, crosses the fifth cartilage two inches and three-quarters from mid the sternal line (opposite the six-and-five-eighth inch point), and ends at the apex (see 2).

4. *Right Border*: Begins at the right end of the base line, passes outward and downward across the third right costal cartilage an inch and a half from the mid sternal line (at its three-inch-and-a-half point), over the third interspace and fourth costal cartilage an inch and three quarters from the mid-sternal line (the former opposite the four-and-three-eighth and the latter the five-inch points respectively). It now curves downward and inward and terminates over the center of the fifth costal cartilage an inch and three eighths from the median line (at its six-inch point).

5. *Lower Border*: This joins the lower ends of the right and left borders. In doing so it describes a wavy course  with a concavity at each end, looking upward, and one in the center, as it crosses the middle line, looking downward. It crosses the sixth and seventh right costal cartilages transversely to their long axes, the median line at its six-and-three-quarter-inch point, over the middle of the ensiform, and the seventh left costal cartilage very obliquely to reach its lowest point at the lower margin of the sixth costal cartilage an inch and a quarter to the left of the mid-sternal line (at its seven-and-a-half-

inch point), then turns abruptly upward to join the lower extremity of the left border at the apex.

C. *Auricles*.—1. *Right*: Its upper and outer (right) borders are formed by the portions of the base and right border lines of the heart, cut off by a line which forms the inner (left) border of the auricle and which starts from the base line a quarter of an inch to the right of the median line and passes directly down until opposite the lower border of the third right costal cartilage (at the three-and-five-eighth-inch point on the mid-sternal line). From this point it curves slightly downward, passing outward about parallel with the lower margin of the third costal cartilage until an inch from the mid-sternal line (opposite the four-inch point), when it turns more abruptly downward and intersects the right border of the heart at the upper margin of the fourth costal cartilage.

2. *Left*: This shows as only a very small, half-moon shaped space, bounded above and on the outside by small adjacent portions of the base and left border of the heart. Its inner margin is indicated by a line drawn from a point on the base line an inch to the left of the mid-sternal line, and curving downward and outward to intersect the left border, where it crosses the center of the third cartilage.

D. *Auriculo-ventricular Groove*.—The two extremities of the line indicating this groove correspond to the lower halves of the inner borders of the auricles; the central portion, to a line connecting the middle points of these borders and curving slightly upward as it crosses the sternum.

E. *Coronary Arteries*.—1. *Right*: Runs from the middle point of the inner boundary of the right auricle, an inch from the median line, downward in a nearly straight course to the lower border of the heart, three quarters of an inch from the mid-sternal line.

2. *Left*: This begins similarly at the mid-point of the inner margin of the left auricle, and descends almost vertically and about an inch and a quarter from the mid-sternal line to the lowest point of the lower border of the heart.

F. *Long Axis of the Heart*.—Reaches from the right end of the base line to the apex. It crosses the mid-sternal line (at its four-and-a-half-inch point) opposite the centers of the sternal ends of the fourth cartilages.

G. *Area of Cardiac Dullness during Inspiration*.—It is a quadrilateral space, bounded on the right by the median line, below by the lower border of the heart, above by a line drawn from a point on the mid-sternal line (four-and-a-half-inch point) opposite the centers of the sternal ends of the fourth cartilages, along the upper margin of the fifth left cartilage, an inch and a quarter from the mid-sternal line (opposite its five-and-three-quarter-inch point), and on the left by a line from the last point downward and inward to cross the lower border of the heart, three quarters of an inch to the left of the median line.

Roughly stated, this area is an inch and a quarter wide, to the left of the median line, limited above by the upper margin of the fifth left cartilage, and below by the lower border of the heart.

H. *Aorta*.—Its axis corresponds to the median line as far as it is shown in the photograph, its right border being

half an inch to the right of its left, the same distance to the left of the median line, the former reaching from the base line (half an inch to the right of the mid-sternal line), and the latter appearing above the pulmonary artery, and both disappearing under the upper fragment of the sternum.

I. Pulmonary Artery.—This occupies the intervening space between the auricles, and is limited below by the line for the auriculo-ventricular groove. It is about an inch and a quarter wide at its base, and extends above the base line about half an inch, where it disappears under the aorta. It conceals the origin of the left portion of the aorta.

J. Superior Vena Cava.—This shows as nearly vertical and three quarters of an inch wide along the right side of the aorta. Its right border begins from the point of intersection of the right heart border and the upper margin of the third costal cartilage, and passes directly upward to disappear under the upper sternal fragment. Its left border is indicated by the same line as the right margin of the aorta.

K. Lungs.—In inspiration (moderately inflated) and contained within the unopened pleuræ. Their anterior edges alone traced.

1. Right: The anterior border of the right lung is nearly vertical for a considerable part of its extent.

It appears (in the photograph) issuing from beneath the upper fragment of the sternum, opposite the one-and-a-half-inch point of the mid-sternal line, and distant from it half an inch to the right. It passes downward and inward to cross the mid-sternal line at its one-and-three-quarter-inch point (opposite the first interspaces), and reaches a quarter of an inch beyond the center line toward the left.

From here it descends vertically parallel with and a quarter of an inch from the middle line until on a level with the center of the sternal ends of the fifth cartilages (opposite the five-inch point on the mid-sternal line), where it turns to the right, crosses the median line, and passes downward and outward, following the direction of the upper margin of the sixth cartilage.

2. Left: Its outline is more irregular than the right, as it has a large notch for the accommodation of the heart.

Like the right, it comes out from the upper portion of the sternum, the same distance to the left of the mid-sternal line, at the same point (one-and-a-half-inch point), passes downward toward the right, and meets the right lung on a level with the upper border of the second costal cartilages (opposite the two-inch point on the mid-sternal line).

From here the inner borders of the two lungs (separated only by the pleuræ) remain in close contact until opposite the middle point between the fourth cartilages (four-and-a-half-inch point on the mid-sternal line), when the left lung abruptly leaves the other and passes outward and downward parallel with the upper border of the fifth costal cartilage until an inch and a quarter from the mid-sternal line (opposite its five-and-three-quarter-inch point). It now passes downward and slightly inward until the sixth cartilage is reached, which it follows outward to the left along its upper margin.

3. This notch in the left lung exposes the lower portion of the heart, and forms the upper and outer boundary of the area of the heart exposed in inspiration. The inner border of this space agrees with the median line, and its lower with the lower margin of the heart.

SUBJECT II.—Adult male, white, about forty-five years of age; cause of death unknown. Subject had been injected with zinc chloride and plaster color mixture.

A. Nipples.—These are situated three inches and a half from the median line on the extreme lower margin of the fourth ribs. As the left ribs slope down slightly further than the right, it follows that when referred to the median line the left nipple is a quarter of an inch lower than the right (or the left is opposite the five-and-a-quarter-inch point and the right opposite the five-inch point on the mid-sternal line).

B. Heart.—The auricles and aorta were injected, but the ventricles were not, and were in a state of firm contraction, and so represent fairly accurately the position of the heart in systole.

1. Base: This is indicated by a line from just above the upper margin of the third right costal cartilage, an inch and five eighths from the mid-sternal line (at its three-and-a-half inch point), drawn across the sternum to end three quarters of an inch to the left of the median line opposite the center of the second interspace (at three-and-a-quarter-inch point on mid-sternal line).

2. Apex: Over the center of the seventh left costal cartilage three quarters of an inch from the median line (opposite its seven-and-a-half-inch point).

3. Left Border: From the left extremity of the base, nearly vertically downward to the apex point.

It crosses the cartilages of the third, fourth, fifth, and sixth ribs at a distance of seven eighths of an inch from the mid sternal line, opposite the following points on this line: The third, at the three-and-seven-eighths-inch point; the fourth, at the five-inch point; the fifth, at the six-inch point; the sixth, at the seven-inch point.

4. Right Border: From the right extremity of the base line downward and slightly outward to the middle of the fourth costal cartilage, an inch and three quarters to the right of the mid-sternal line at its five-inch point. In crossing the third cartilage it is an inch and five eighths from the same line (at its three-and-seven-eighths-inch point). The line now passes downward and inward to the center of the fifth cartilage an inch from the mid-sternal line opposite the six-inch point.

5. Lower Border: Really continues the direction of the right border from the last point above downward and inward in a nearly straight direction to cross the median line at its seven-and-a-half-inch point. Over the xiphi-sternal articulation to the left of the median line it descends a slight distance as it passes outward until about three quarters of an inch from the same, when it turns upward to the apex and joins the lower extremity of the left border. This line is slightly concave downward and toward the right as it crosses the sixth and seventh right cartilages.

C. Auricles.—1. Right: Presents a pear-shaped outline in the photograph, its upper and outer margins being

formed by the adjoining parts of the base and right border of the heart. Its inner boundary is indicated by a line from the base, half an inch to the right of the median line, passes vertically downward for three quarters of an inch, then downward and outward to intersect the right border, where it crosses the upper margin of the fourth costal cartilage.

2. Left: Shows as the merest oval space in the angle of the base line and left border and limited on the inside by a line drawn downward and outward from a point on the base half an inch to the left of the median line to the left border at the lower margin of the third costal cartilage.

D. *Auriculo-ventricular Groove*.—This is indicated at either extremity by the lower portions of the inner auricular margins, and its central portion by joining these two extremities by a line slightly convex upward as it crosses the mid-sternal line (at its four-inch point) opposite the lower margin of the third costal cartilages.

E. *Coronary Arteries*.—1. Right: This comes out from under the lower and middle thirds of the inner border of the right auricle nearly an inch to the right of the median line, and with many turns and twists, due to the contracted state of the heart, passes downward nearly vertically to the lower border of the heart.

2. Left: This shows on the extreme left of the heart issuing from the lower portion of the inner margin of the left auricle and descending directly to the apex, varying in its distance from the left of the median from three quarters of an inch in the upper third to half an inch in the lower third of its course.

F. *Long Axis of the Heart*.—From a point on the base an inch and a quarter to the right of the median line to the apex. This crosses the middle of the sternum (opposite the six-inch point) on a level with the lower border of the fifth cartilages.

G. *Area of Heart exposed in Inspiration*.—Owing to the contracted state of the heart, its entire lower portion to the left of the mid-sternal line and below the lower border of the fourth cartilage is uncovered.

H. *Aorta*.—Right Border: This is shown by a line from the right extremity of the base drawn vertically upward across the second costal cartilage an inch and three quarters from the mid-sternal line (at its two-and-three-quarter-inch point), then curves upward and toward the left to pass under the upper sternal fragment an inch and a half from the mid-sternal line (at the two-inch point). The left border is covered at its beginning by the pulmonary artery and only shows as a short curved line reaching from the level of the lower margin of the second right costal cartilage a quarter of an inch from the median line (at its three-inch point) toward the left to cross the mid-sternal line on a level with the upper margin of the second costal cartilages (at the two-and-a-quarter-inch point.)

I. *Pulmonary Artery*.—Occupies the interauricular space; with this it passes upward, curving toward the left, and disappears on a level with the upper border of the second cartilages.

J. *Superior Vena Cava*.—Does not appear in the photograph.

K. *Lungs*.—In inspiration (moderately inflated) inclosed within the unopened pleural sacs.

1. Right: Appears from under the upper fragment of the sternum an inch to the right of the mid-sternal line (at its one-and-a-half-inch point), passes downward and inward, crosses the middle line (at its two-and-a-half-inch point), opposite the upper border of the second cartilages, continues its course to about a quarter of an inch to the left of the median line, and then descends nearly parallel with the same and at an average distance from it of a quarter of an inch until opposite the upper margin of the sixth costal cartilages (at the six-and-a-half-inch point on the mid-sternal line) it bends to the right, crosses the mid-sternal line (at its six-and-three-quarter-inch point), and runs outward and downward parallel with the upper margin of the seventh costal cartilage.

2. Left: This issues an inch to the left of the median line opposite the same point (an inch and a half) as the right, inclines downward and inward until at the lower margin of the second costal cartilage (left) it takes a course parallel with and nearly half an inch from the left of the mid-sternal line, until just below the lower border of the fourth left cartilage (at its five-and-three-eighth-inch point on mid-sternal line), where it turns transversely outward for half an inch, then downward and outward to the fifth intercostal space an inch from the mid-sternal line (at its six-and-three-quarter-inch point). It now bends inward to meet the upper margin of the seventh costal cartilage, then turns outward along the upper margin of the same.

The two lungs come in contact for only a quarter of an inch opposite the lower margin of the third cartilage.

3. The amount of heart uncovered by the left lung is in this case an area at the left of the median line an inch wide and nearly two inches long, reaching from the lower border of the fourth to that of the sixth left cartilage.

SUBJECT III.—Adult female, white, about twenty-five years old, well formed and quite muscular. Probable cause of death, pneumonia (double). Subject was not injected.

A different plan was followed in this instance from that in the two preceding cases.

The subject was firmly strapped to a tilting table and suspended by the neck in a nearly vertical position. The camera was adjusted, focused, and set. Then negatives of the chest (before and after dissection), of the heart (with and without the pericardium), and of the lungs were made without disturbing the subject or camera, and these negatives fit upon each other perfectly, so that, after prints were made, the measurements were obtained by placing the photograph of the heart or lungs over that of the exterior of the thorax and tracing upon the latter the outlines of the former by pricking through the two with a pin.

This method gives good results, provided no change of focus or of the position of subject or camera is made, as the images of the deeper structures are not obscured by those of the more superficial ones. Perfect outlines of the heart with its vessels and of the lungs can be obtained by tracing them as above shown.

A. *Nipples*.—The breasts were small (for a female of this size) and firm.

1. Right: In the center of the fourth interspace four inches from the mid-sternal line (opposite its five-and-a-quarter-inch mark).

2. Left: Over the lower margin of the fourth rib, four inches from the mid-sternal line (at the same point as above).

The ribs on the left side curve downward slightly more than on the right, and this accounts for the different relations of the two nipples with reference to the thoracic wall. Referred to the median line, they are exactly on the same level.

B. *Heart*.—This organ with its vessels was only moderately distended with blood.

1. Base: Begins in the center of the third interspace an inch and an eighth to the right of the mid-sternal line (at its four-inch point), curves slightly upward as it passes to the left to cross the median line (at its three-and-a-half-inch point), on a level with the lower border of the third costal cartilages, and ends an inch and a half to the left of the mid-sternal line (at its three-and-a-quarter-inch point) at the upper margin of the third costal cartilage.

2. Apex: The apex point is over the interchondral articulation of the cartilages of the fifth and sixth left ribs an inch and a half from the mid-sternal line (at its seven-and-a-half-inch point).

3. Left Border: Begins at the left extremity of the base line, passes downward, inclining slightly outward, until the middle of the fourth interspace is reached, two inches from the mid-sternal line (at its six-and-a-quarter-inch point). From here it turns downward and toward the right to end at the apex point.

The left border crosses the third costal cartilage an inch and a half from the mid-sternal line (at the three-and-three-quarter-inch point), the fourth cartilage two inches from the same (at the five-and-a-half-inch point), and the fifth cartilage an inch and three quarters (at the six-and-seven-eighth-inch point).

4. Right Border: Extends from the right extremity of the base line vertically downward to the center of the sixth costal cartilage an inch from the mid-sternal line (at its six-and-a-quarter-inch point). This border crosses the fourth and fifth cartilages at the same distance from the median line (the former opposite the four-and-a-half and the latter the five-and-a-half-inch points).

5. Lower Border: Is indicated by a line from the lower end of the right border downward and toward the left to cross the seventh right cartilage transversely to its long axis, the mid-sternal line (at its seven-and-a-quarter-inch point), over the middle of the ensiform, continues still downward and outward to the center of the sixth left costal cartilage an inch from the mid-sternal line (at its seven-and-a-half-inch point), then curves upward to end at the apex point and connect with the lower end of the left border. This line is slightly concave upward and to the left as it crosses the median line.

C. *Auricles*.—1. Right: The inner border of the right auricle is indicated by a line which starts from the base a quarter of an inch to the left of the mid-sternal line,

passes vertically downward until opposite the middle of the sternal ends of the fourth cartilages (at the four-and-a-quarter inch point of the mid-sternal line), where it turns toward the right across the median line (at its four-and-three-eighth-inch point), then, with a slight convexity toward the right shoulder, passes to meet the right border of the heart as it crosses the lower margin of the fifth costal cartilage. The auricle is bounded on its upper and outer sides by the adjoining portions of the base and right border of the heart.

In this case the auricle reaches to the left a quarter of an inch beyond the median line.

2. Left: This is a very small space cut off at the angle of junction of the base and left border by a line beginning seven eighths of an inch to the left of the mid-sternal line on the base line, and passing downward and outward to meet the left border at the lower margin of the third costal cartilage.

D. *Auriculo-ventricular Groove*.—Corresponds to a line joining the middle points of the inner auricular boundaries plus the lower halves of these borders.

E. *Coronary Arteries*.—1. Right: Issues from the inner border of the right auricle, half an inch to the right of the mid-sternal line, and passes downward and inward to the lower margin of the heart at the median line.

2. Left: This issues from the inner border of the left auricle, an inch and a quarter from the mid-sternal line, and passes vertically downward until near the apex, when it turns inward to reach the lower border, half an inch to the left of the median line.

F. *Long Axis of the Heart*.—From the base line, three quarters of an inch to the right of the mid-sternal line, to the apex point, it crosses the median line (at its four-and-three-quarter-inch point) opposite the upper border of the fifth cartilages.

G. *Area of Heart exposed in Inspiration was not determined, owing to the Condition of the Lungs*.—In expiration the lungs collapsed. The entire lower two thirds of the heart to the left of the median line and below the level of the upper margin of the fourth costal cartilage is exposed.

H. *Aorta*.—In width, as shown in the photograph, is about an inch. Its right border starts from the base an inch to the right of the mid-sternal line and passes upward across the third cartilage, seven eighths of an inch from the median line (at the three-and-a-half-inch point), across the second cartilage five eighths of an inch from the central line (at the two-inch point), and is lost curving toward the left under the upper sternal fragment.

Its left border shows only for a short distance curving over the pulmonary artery from right to left, about an inch from and parallel with the right border.

I. *Pulmonary Artery*.—Includes the space left between the auricles and also comes from behind the entire inner half of the left auricle. It reaches as high as the lower margin of the second costal cartilage (opposite the two-and-a-quarter-inch point on the mid-sternal line).

J. *Superior Vena Cava*.—Shows in a collapsed state to the right of the aorta. Its right border reaches from the extreme right end of the base vertically upward to disap-

pear under the upper sternal fragment and cartilage of first rib. Its left margin is the same as the right for the aorta.

K. *Lungs*.—These could not be inflated satisfactorily (death due to a double pneumonia), so no attempt at securing photographs of them in *inspiration* was made.

The following measurements give the outlines of the anterior margins of the lungs in their partially collapsed state—pleura removed.

1. Right: The anterior border appears above in the median line (at the one-and-a-half-inch point), passes downward and to the left of the mid-sternal line until opposite the center of the second interspace (at the two-and-a-half-inch point on the mid-sternal line and a quarter of an inch to its left), runs parallel with the median line until (opposite its three-and-three-fourth-inch point) on a level with the center of the third space, when it curves downward and toward the right and is lost running parallel with the upper margin of the sixth costal cartilage.

2. Left: Issues from the upper sternal fragment three eighths of an inch to the left of the mid-sternal line (at the same one-and-a-half-inch point as above), descends, almost touching the right lung, until opposite (the three-and-a-half-inch point on the mid-sternal line) the lower border of the third cartilage, it turns outward toward the left along the upper margin of the fourth costal cartilage until it reaches the left border of the heart, which it follows to near the apex, then turns to the left, following the curve of the sixth costal cartilage (upper margin).

3. Area of heart exposed on expiration: See Sec. G preceding.

(To be concluded.)

TRAUMATIC DEAFNESS.

By W. H. BATES, M.D.,

ASSISTANT SURGEON, NEW YORK EYE INFIRMARY.

SEVERAL years ago a case of traumatic deafness was treated. Both drum membranes were ruptured by an explosion of dynamite. The tuning-fork test showed symptoms of nerve deafness. Treatment consisted in careful cleansing of the middle ear, politization, and the use of general tonics. A successful effort was made to prevent the margins of the perforations from becoming adherent to the promontory. The patient's hearing became more acute than before the injury, possibly from the fact that the cicatrix tightened the drum membrane. A number of other persons injured at the same time by the explosion to about the same degree, not treated, did not recover their hearing. Of the following cases reported, Case VI was the only one to receive treatment, and was the only one which was observed to end in recovery. Cases of traumatic deafness with rupture of the drum membrane need immediate treatment. Methods of treatment which are beneficial in middle-ear disease from catarrhal inflammation are beneficial in traumatic deafness. Politization early in the treatment may not benefit, but will improve the hearing after the drum membrane has healed.

The following cases are interesting, as showing the

variety of injury capable of causing deafness. All were in dispensary patients:

CASE I.—J. G., aged eighteen years, was kicked by a horse on the end of his chin. He was unconscious ten minutes. The injury occurred June 22, 1891. The patient was seen the next day. Both drum membranes were ruptured. The left ear bled all night. A clot fills the left external auditory canal. Ears pain on swallowing. Right, watch, $\frac{2'}{48''}$; left, watch heard only on contact.

CASE II.—C. B., aged thirty-five years, fell from a ladder in December, 1891, and struck the back of his head. Sudden deafness, complete in both ears, occurred immediately. Three days later hearing returned partially in the right ear. March 31, 1892, the patient came to the dispensary. Drum membranes of both ears are sunken, pale-yellow in color; the malleus handle is red, prominent, not displaced forward or backward. Tinnitus is complained of in both ears, and it is worse in the right ear, which is the ear with the better hearing. There is an appearance of a cicatrix in the lower portion of both drum membranes (healed traumatic rupture of the membranes?). During inflation air rushes through the Eustachian tubes and produces a sound like the sound of a dry tube opening and allowing air to enter. Paralysis of the seventh nerve on the left side, but it is not complete. Right, acoumeter, $\frac{6''}{100'}$; left, acoumeter, 0. After inflation, right, acoumeter, $\frac{8''}{100'}$; left, acoumeter, $\frac{c}{100}$.

The case is interesting from the fact that inflation improved the hearing.

CASE III.—R. S., aged forty-seven years, fell down stairs. There was a discharge of blood at the same time from both ears. Collar bone was broken. Tinnitus began at once.

December 12, 1891, six weeks after the injury, presented himself for treatment. Both drum membranes healed with the appearance of a cicatrix in the posterior portion of each drum membrane. The patient complains of dizziness. The tinnitus is still annoying. Ordered tincture of iron, 3 ss., three times a day.

December 22d.—He has less dizziness.

December 29th.—Right, watch, $\frac{4'}{48''}$; left, acoumeter, $\frac{1''}{100'}$.

Politization improves the hearing of both ears.

CASE IV.—J. L., aged twenty-six years. While loading a truck on August 1, 1892, a barrel fell against his head. He came to the dispensary three days later complaining of deafness. Right drum membrane has a circular perforation below the apex of the malleus handle. There is a slight bloody discharge from the right ear. The left drum membrane is congested; it is not ruptured. Right, acoumeter, $\frac{2'}{100'}$; left, watch, $\frac{6''}{48''}$.

CASE V.—W. D., aged sixty-two years, was seen November 1, 1892. During the War of the Rebellion, while standing near the muzzle of a gun at the time of its discharge, he felt a sudden pain in his right ear, which seemed to go through his head to his left ear. The right ear was deaf from that time. He noticed no discharge from either ear. Right, watch heard on pressure against the ear. Left, watch, $\frac{12''}{48''}$.

CASE VI.—F. V., aged twenty-two years, while bathing, August 19, 1893, was struck on the left side of his head by the

shoulder of a companion diving from a height of about six feet. The left ear immediately discharged fluid and blood. About an hour after the injury he noticed tinnitus which continued without intermission.

August 22d.—The patient began treatment. Right ear is normal. The left ear hears watch, $\frac{2''}{48''}$. The left drum mem-

brane is perforated in the posterior inferior quadrant. There is considerable redness and swelling of the drum membrane. Ordered syringing with warm saturated solution of boric acid.

September 5th.—The drum-membrane perforation has healed. Left, watch, $\frac{6''}{48''}$. Politization did not improve the hearing. R Ung. flav., gr. xx- $\frac{3}{4}$ j, to be applied in the external auditory canal.

September 19th.—Left, watch heard at 3". After politization the hearing improved to 5". There is now no tinnitus.

September 23d.—Left, watch, $\frac{6''}{48''}$. Politization did not improve the hearing.

October 3d.—Left, watch, $\frac{20''}{48''}$; after politization the hearing improved to nearly normal. The tinnitus has not returned. Hearing for conversation seems good.

64 EAST FIFTY-EIGHTH STREET.

A NEW BANDAGE FOR THE TREATMENT AFTER THIERSCH'S METHOD OF TRANSPLANTATION OF SKIN.*

By OSCAR J. MAYER, M. D.,

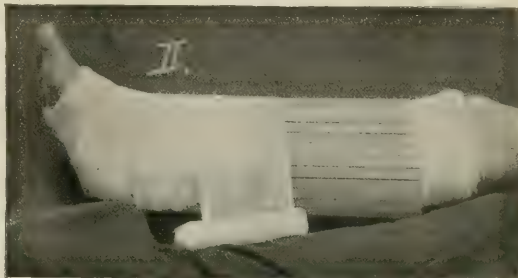
SAN FRANCISCO, CAL.

LATE ASSISTANT ON THE SURGICAL STAFF OF MOABIT HOSPITAL, BERLIN.

THE method of transplanting skin first introduced into medicine by Professor Thiersch enjoys such universal employment—possessing as it does advantages recognized on all sides—that it appears hardly necessary to here employ space stating its uses. Not alone can the surgeon with a host of skilled assistants at his side make use of this procedure for a patient's benefit, but as well the ordinary coun-

ent are in the removal either loosened or else wholly torn away.

By means of the dry bandage, which remains five to six days, we—on extensive surfaces, for example—are rewarded, on an average, with the firm adhesion of about sixty per cent. of the transplanted pieces. With the moist band-



age, with or without silk protective, whether using liquor aluminii acetatis or an ointment, even with the most painstaking care, on removal of the bandage we find that some pieces are torn away, while others are loosened to such an extent that they go over into necrosis and fall away.

In consequence, I have made an attempt to overcome this difficulty by means of an alteration in the bandage. After the transplantation the bandage is so applied that contact with the wound or surrounding surface is avoided, the wounded surface being bridged over.

As one can readily see from Fig. 1, a pillow of wool, cotton, or like material is placed one above and one below the surface operated upon. If the pillow is now bridged over by a slat of wood or firm pasteboard, and the whole made into a bandage *lege artis* and still further stiffened by a starch bandage, we shall have the wound well covered, yet contact can take place at no point. The bandage can be changed as often as necessary without disturbing the transplanted pieces—a self-evident advantage in this operation.

As, however, on extensive surfaces—for example, in ulcerations on the leg or arm, encircling the whole limb—a broad slat would not be practicable, whereas many narrow ones would present difficulties and require assistance, I have devised an arrangement by which small slats, cut appropriately, are pasted upon a piece of linen parallel and close to each other, so that the whole can be rolled, as can be easily seen from Fig. 2.

As this bandage does not sit firmly over ulcerated surfaces in the region of the elbow joint or of the dorsum of the foot, I have made use of strips of plaster of Paris modeled appropriately and likewise resting on pillows (*vide* Fig. 3). This latter method can be used with great advantage when transplanting is resorted to for covering extensive burns of the chest, back, or other regions of the body.

As a matter of course, the plaster strips must be modeled with due reference to the location for which they may



try practitioner, who is thrown entirely on his own resources for assistance.

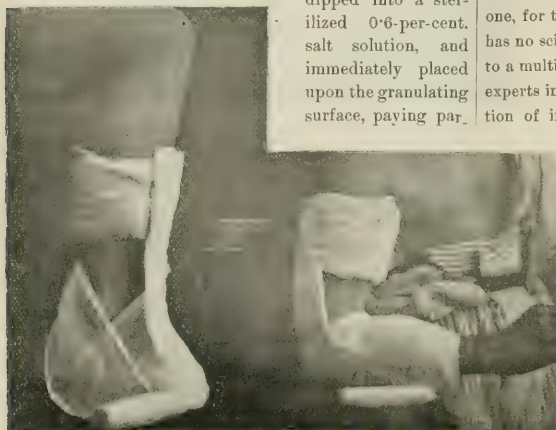
Only the after-treatment presents some objectionable difficulties, in so far as the oft-necessary change of bandage has as a consequence that pieces already somewhat adher-

* Read before the Section in Surgery of the First Pan-American Medical Congress.

be designed, so that they cause neither pressure nor other untoward symptoms.

One disadvantage has shown itself in this method, and must not be overlooked. In the operation of transplanting it sometimes happens that small pieces of the transplanted skin lap over on to the healthy skin or upon one another. These overlapping pieces form small vesicles within the next twenty-four hours. These must be opened and the overlapping pieces carefully removed, when, if the granulating surface has been aseptic, a serum-like fluid, in not aseptic condition a sero-purulent fluid or pus, exudes. In the transplantations which I have carried on antiseptis was not employed further than in *preparing* the field of operation. The pieces of skin were removed with a knife

dipped into a sterilized 0.6-per-cent. salt solution, and immediately placed upon the granulating surface, paying par-



ticular attention that none of the pieces might overlap. After being bandaged from four to five days with the flat bandage, the transplanted pieces were so firmly attached that further treatment could be continued by means of a liquor-alumini-acetatis dressing, which could be removed without danger of loosening or tearing away the small pieces of transplanted skin.

The above-mentioned disadvantage which may occur with this method of bandaging is so slight in comparison to the great advantages which the method offers that I may hope that the medical profession in general may obtain the same good results, and in making use of it save much time and labor.

801 SUTTER STREET.

The Death of Dr. Charles Frederick Crehore, of Newton Lower Falls, Mass., took place on Wednesday, the 8th inst. He was a graduate of the Harvard Medical School, of the class of 1854. Nearly thirty years ago he gave up the practice of medicine and engaged in a manufacturing business. During the War of the Rebellion he served as a medical officer in the army.

Dr. Keeley's Suit against the Lancet.—The *Lancet* announces that Dr. Leslie E. Keeley, of "gold-cure" notoriety, has discontinued the suit for libel brought by him against the editors of that journal, and will be obliged to pay the costs.

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"RAILWAY SPINE."

DR. LOUIS BAUER, of St. Louis, has given in the *Clinique*, of that city, reasons which in his mind weigh against the use of the term at the head of this article. He considers the term, which owes its origin to the eminent Mr. Erichsen, an unhappy one, for the reason, chiefly, that it presents no definition and has no scientific significance. It has undoubtedly contributed to a multitude of actions for damages and set at variance many experts in all parts of the English-speaking world. The attention of investigators has been diverted by it from the real

"traumatic neurosis" as a subject of experimental and clinical research; otherwise long before now the pathological significance of that neurosis would have been better understood.

The diligent labors of Dr. H. Schmaus, recorded in the *Archiv für pathologische Anatomie und Physiologie und für klinische Medizin* for 1890, have already promoted a clearer appreciation of the subject.

By subjecting dogs to a series of traumatic forces bearing upon their spinal columns, Schmaus has induced a variety of injuries to the cord, its coverings, the exterior muscular apparatus, and the peripheral nerves of the spinal region. In a certain number of cases the same violent acts left no impression upon the parts exposed to them. He likewise was able to affirm that when anatomical lesions were inflicted they were as a rule responded to by appropriate symptoms. We learn from these discriminating experiments of Schmaus's to look upon contusion and concussion, respectively, as the proximate causes of widely different morbid effects. The former is the source of the ordinary anatomical derangements, while the latter responds to Oppenheim's definition of "traumatic neurosis." As to the *modus operandi* of spinal concussion as the parent of grave cases of suffering, enduring even for a term of years, Dr. Bauer is not in agreement with Oppenheim; Dr. Bauer relates an instance, observed in his own practice, the duration of which exceeded a third of a century. He holds that the large majority of the more estimable or trustworthy part of the profession take emphatic exception to Oppenheim's views, and thinks that Oppenheim's admissions afford substantial ground for those exceptions. For example, he owns that, in spite of the great violence of their suffering, the patients very seldom succumb, and commonly when the trial is over become materially improved "because their minds are set at ease."

Dr. Bauer also adverts to a recent article by Dr. Nonne, in

the *Deutsche medicinische Wochenschrift*, Nos. 27-29, 1893, in which the author states that most of the symptoms observed by him in certain cases could just as well pass as evidence of the traumatic neurosis—as estimated by Oppenheim—or as evidence of hysteria or neurasthenia, or signify cerebral or spinal lesions.

MINOR PARAGRAPHS.

NEWSPAPER MEDICINE AGAIN.

A WRITER in the *St. Louis Globe-Democrat* has soared above the mere blundering to which newspaper writers usually confine themselves when they descant on medical matters. In an account of an operation for traumatic aneurysm of the femoral artery, he says that the surgeon "cut a heart out of a man's leg." He goes on as follows: "Instead of being necessary to the patient's existence, as hearts usually are, this organ was a very dangerous possession and was likely to end his life at any moment. The heart was almost as large as the one usually found inside a man's ribs, and beat in very much the same manner. It was situated upon the inside of the right leg, four or five inches above the knee, and was more tender than the ball of the owner's eye. . . . The aneurysm could be seen to beat to all intents and purposes like any other heart. If one brought his ear close to it he could hear a constantly repeated blowing or breathing sound coming from beneath the skin. *This noise was caused by the vacant air space around the swollen artery where it had crowded the muscles aside.*" The operation is described thus: "A sharp knife laid the tissues aside and exposed the femoral artery with its apple-shaped bulb. The artery was then tied, or 'ligated,' two inches above and two inches below the swelling, and the big bulb cut open. Nearly a pint of blood gushed forth and then there was no heart left. The slit artery was then sewed together with fine-silk threads previously soaked in antiseptic solutions, and left to heal. The ligatures above and below were left to remain, however, until the artery is fully healed. Then they will be untied and the blood allowed to go down Gentry's [that was the patient's name] leg as usual. In the mean time the patient's limb will receive blood from the smaller arteries, and will in all probability keep from dying."

THE OHIO STATE ASYLUM FOR EPILEPSY.

GOVERNOR MCKINLEY has declared open the new retreat for epileptics at Gallipolis. The trustees are ready to receive two hundred and fifty male patients, but they are not fully provided with the proper information to enable them to classify the applicants for admission. Dr. H. C. Rutter, who is the medical officer, may be addressed at the asylum at Gallipolis. The blank forms of application are in the custody of the probate court of each county, and those who seek the benefits of the new institution are desired to call upon the probate judge and fill out the regularly prepared papers.

THE AMBULANCE STREET CAR.

THE application of the modern system of ambulances to electric street railways has been attempted in St. Louis. It results in the establishment of an emergency ward on car-wheels. The springs of the car are so made as to reduce to a minimum all the jar and shock that are apt to occur to the patient during transit. As three large hospitals and the chief dispensary of the city are located along the line of the electric roads, it will be convenient to convey the sick and injured from central districts, as well as outlying ones, by means of the elec-

tric-car ambulance. The ordinary city ambulances, moved by horse power, will still be required to supplement the work of the car ambulance. Every electric-car company in our cities should include an ambulance as a part of the original plant for this reason, if for none other, that a large casualty list is apt to accompany the establishment of electrical rapid transit in any crowded district. The companies should be prepared to help in the relief of those unfortunate citizens who suffer at the hands of inexperienced motormen and deranged machinery.

A NEW MEDICAL NOVELIST.

DR. ARABELLA KENEALY is the writer of a work of fiction, entitled *Dr. Janet of Harley Street*, which has reached its fourth edition. She is said to have gone through a complete training in medicine with the express purpose of employing the knowledge thus gained in the construction of novels. Early in life she had displayed a good literary talent, and conceived the original notion that she was deficient in that knowledge of human nature and human motives which medical study would supply her with. She determined, therefore, to bury herself for the requisite number of years away from the literary world and obtain a medical degree, although in the eyes of many of her friends these years of study seemed little better than a waste of time. But her self-estimate appears to have been substantiated.

THE NEW VOLUME OF THE INDEX-CATALOGUE.

THE fourteenth volume of the *Index-catalogue of the Library of the Surgeon General's Office, United States Army*, recently issued, brings the vocabulary to the word Universally. It shows evidence of having been prepared with the same thoroughness and carefulness that have been brought into play in the preparation of the preceding volumes. Fourteen pages are devoted to the seventh addition to the Alphabetical List of Abbreviations of Titles of Medical Periodicals, and the text occupies 1016 pages. It is to be presumed that one volume more will complete this great work.

ITEMS, ETC.

The Athletic Life.—In the *Lancet* for October 28th we find the following abstract of a lecture delivered by Sir Benjamin W. Richardson before the Athletic Association of Birmingham: "The lecturer limited the period of the athletic career to a shorter course than is generally accepted—namely, from the eighteenth to the thirty-sixth year; but it should be understood that he meant by this the true athletic existence, in which really active contests can be carried on. Contests of a serious kind should not be attempted until the body approaches maturity and should not be continued after the time when the body comes near to middle age. A point was raised whether every person can be transformed under any trainer or under any system of training into a veritable athlete—that is to say, into one who can properly enter into a contest. It was admitted at the end of the discourse that a physically uncultivated nation might have its strength easily doubled by the introduction of a sound system of athleticism; but it was contended that among the members of communities there were always a number who, although benefited by physical exercises, could never become athletes and who ought never to attempt to reach the position. A distinction was thus raised as between common physical exercise and the trained exercise intended for the purposes of competition. A speaker, Mr. Mathews, in moving a vote of thanks to the lecturer, explained that he, a Swiss mountain climber, kept up his climbing feats although he was sixty years of age—viz., twenty-four years of age beyond the period that

had been specified. But that is not athleticism, was the reply; it is common exercise that requires no trainer, and, although it is risky, it does not come into the sphere of the athletic life. Here is a question that opens up a wide field of controversy among those who have made athletic pursuits a part of their practical studies. Is there a line of demarcation between athletic exercise and systematic common exercise? The answer, we presume, will be that there is such a line of demarcation, and that the term 'athleticism' is only applicable to pursuits where competition comes into play and where perhaps a course of training is required for success. This evidently was Sir Benjamin Richardson's view, and he mentioned, as the qualities to be developed by such training, precision, decision, presence of mind, and endurance. These qualities are of a mixed sort, being partly physical and partly mental, but their interrelation is very intimate, and it is easy to see that their joint employment must result in the perfection of athletic prowess, in whatever department of athleticism they are displayed. At the same time the four qualities had not, in the lecturer's eye, an equal value; mental endurance, the other qualifications being in fair condition, stood first. A comparatively feeble development of body could be made effective by mental endurance, and some most important physical difficulties could be overcome by strength and endurance of will aiding and sustaining endurance of a physical kind. Several striking examples were supplied in which mental endurance carried the day, and it was shown that pure physical accomplishment, great as it might be, was of little avail when not backed up by the strength of the natural and commanding mind. In other words, mere strong savagery could not make either a nation or a man physically great; there must be that inborn faculty or quality which, though not measurable, nor to be weighed, nor in substance visible, becomes in action the essential virtue, the power that wins—the same virtue that sustains the orator, the writer, and the discoverer, and that belongs in the highest degree to the highest civilization."

The Use of the Title of Doctor is under discussion in the *British Medical Journal*. In its issue for October 21st the *Journal* prints the following:

J. L. C. writes: I think the remarks made by "M. D. and M. B." on this subject are deserving of a retort. In the first place, I should like to ask him who it is that gives the physician and surgeon the title of "doctor?" The patients and the public are the criminals. When a person is ill he does not say, "Go and fetch the M. R. C. S. E.," but says, "Fetch a doctor"; and when the medical man arrives he is called "Doctor." If your correspondent will take the trouble to look at *Nuttall's Dictionary* he will find that such language is quite correct. Nuttall says "doctor" means "a learned man," "a physician," "a fish with sharp-edged spines near the tail," etc. It has been the custom from time immemorial to call physicians "doctors," and I hope it will continue, in spite of the hasty remarks of "M. D. and M. B."; and I also hope the Medical Defense Union (of which I am a member) will continue to apply their funds to a better object than that which is proposed by "M. D. and M. B.," unless at the same time Dr. Leslie Phillips prosecutes M. D.'s and M. B.'s who call themselves physicians without having a diploma from a college of physicians. If a medical man puts M. D. after his name when he is not entitled to it, he ought to be punished; but when a medical man puts "Dr." before his name on his card or doorplate, it is only to show that he practices medicine. A great many men holding an M. D. degree will not allow themselves to be called "doctor," simply because they do not practice medicine, but surgery. Perhaps "M. D. and M. B." would prosecute them for calling themselves

"Mr.'s." "M. D. and M. B.'s" remarks about raising the status of the profession and improving general education are quite uncalled for. I have known M. D.'s of British universities no better educated than board schoolboys, and altogether deficient in gentlemanly manners.

A registered M. D. (registered as such in the first *Register* issued) writes: In reply to "M. D. and M. B.," in the *Journal* of October 7th as to the title of "Dr." which is now being used by a large number of practitioners, not only on their doorplates but also on their cards, without being legally entitled to adopt the title, the time certainly has arrived that such illegality should be discountenanced, particularly after the opinion expressed a short time since at the High Court that no one unless a registered M. D. can style himself "Dr."; also with twopenny dispensaries and usurpation of a title to which the majority of medicals are not entitled, thus assuming a false position in the estimation of the public. Why do not the different colleges—who do not grant degrees, merely qualifying diplomas—exercise their authority in the matter and not allow their members and licentiates to palm themselves upon the general public as doctors? Even the licentiates of the College of Physicians, London, are styling themselves "doctors," contrary to the by-laws issued by that college. The College of Physicians, Edinburgh, seems to have been the first aggressor in permitting their licentiates to use the title—especially in the year of grace when their diploma was to be had by the payment of £10. They can call themselves "physicians" but not "doctors"—thereby meaning, which can not be accepted in any other light, that they are M. D.'s. In any profession a man calling himself "Dr." must be a doctor of something, whether of divinity, laws, medicine, or music. It is high time the question should be finally settled, and I trust before long the Medical Defense Union will be prepared, under its present able president, to take legal proceedings in the matter. It does seem now more respectable to call one's self plain "Mr.," especially in these days, when the status of the profession seems to be somewhat ignored by many medicals who are carrying on their work in a degrading fashion, such as cheap physic and advice, as also taking unto themselves titles which are false and deceptive to the public. As now constituted there are: Doctors—that is, doctors of medicine, M. D.'s; physicians of a college of physicians and surgeons; ditto surgeons. At present L. S. A.'s are without title, some of whom are now styling themselves "doctors."

Common Sense writes: The subject of the title "Dr." appears to have had great interest for a certain number of gentlemen for some years past, but I have failed to observe the names of any important M. D.'s among the number of those condemning its use among general practitioners, and I take it that the obscurity of those who thus object to its use is the very essence of their militating against its being used by any but M. D.'s. An M. D. holding important posts and in good practice would scorn to interfere with his more humble neighbor, because he found it simpler, more convenient, and less conspicuous to have a small doorplate with "Dr. So-and-so" on it, and how can this touch the interests of those M. D.'s who complain of it? They can put "John So-and-so, M. D.," and what more can they want, and what can possibly show more their great superiority over their more humble brother?

Again, it is but an act of selfishness on their part, for if they use their magic letters they can not use the title "Dr." with any decent taste, and if they use this title they must drop the letters. It seems to me the whole matter is contained in a nutshell, and is a question of success or non-success. If a man has the qualities and manner for a successful doctor, a successful doctor he will be, even though he may not be the doctor

with the big D.; and, on the other side, however many letters of the M. D. class a man may hold, he will fill but an indifferent position if he has not these special qualities, and it seems, in my humble opinion, that it is this latter class who have mistaken their vocation, who clamor so loud at what they are pleased to consider their special domain being trespassed upon. An improper assumption of titles is greatly to be deprecated, but it is no more an assumption, in my opinion, to use "Dr." on a doorplate by every qualified doctor than it is for every minister of religion to call himself "Rev."

F. W. C. writes: There is little doubt that, were the general public educated in this matter as regards the intrinsic worth of the variety of medical titles and the various standards required by the different universities and colleges, there would be no hardship for many practitioners to be called "Mr." But as the public is so uneducated on this subject, and so imbued with the idea that a physician or surgeon must necessarily be a doctor, it is a great hardship to well-qualified men, who have passed, it may be, a higher standard of examination than men holding an M. D. degree, to be considered their inferiors from a professional point of view. The General Medical Council require that all examining bodies (corporations as well as universities) shall keep up a certain standard of proficiency. But they in no way insist that the universities shall retain a higher one in their examinations. And I would further point out that the reports of this body are not always universally favorable to the would-be superior examining boards, the universities.

I would respectfully suggest that all M. D.'s should always notify after their names where their doctorate is obtained, as it is only fair, I think, to licentiates to do so until the time comes when the Government of this country shall institute a State examination.

M. D. and Physician writes: Would it be considered peculiar or incorrect for the L. or M. R. C. P. to place on his doorplate "Physician" after the name, omitting "Surgeon" if not practicing as such? If correct, that would settle the dispute about the title of "Dr." (one used by some M. R. C. P.'s as a right, others by courtesy), provided that the M. D.'s do not usurp the right to the title of physician, a far more respectable and highly-thought-of address than the other, which is too often mixed up with the retail of lollipops, tooth brushes, quack medicines, and consultations, medicines included, at the charge of 6d., or clubs at 2s. 6d. a head. Physicians are not permitted to do so. Such conduct is more damaging than the misuse of titles.

Dr. A. Sheen (Cardiff) writes: If I had the power I would solve this question in the following manner: Every registered medical practitioner should have the right to style himself a "doctor," just as every lawyer is styled a "solicitor." This would not imply that he was an M. D. He should put on his card or his plate—

Mr. ———,
Doctor.

The public calls us "doctors," but in print we are spoken of as "medical men," "medical gentlemen," or "medical practitioners"—absurd titles; as is also the one which we frequently see on a doorplate—namely, "Physician and Surgeon." Can not some leaders in the profession, or members of the General Medical Council, take this matter up in the way I have suggested, and once for all do away with an absurd anomaly?

B. A., M. B., B. Ch. writes: The writers of the letters which have appeared on the subject of the title of "Dr." seem to ignore the fact that even among M. D.'s differences exist as regards status. In some cases, though a man may write M. D., he has never passed any arts examination except a preliminary one; others have taken the B. A. degree and perhaps the M. A.

by choice; while others come from universities which have refused to become for any one merely medical colleges, insisting that no degrees in special subjects shall be given till the B. A. examination shall have been passed. Surely if the M. D.'s — B. A. are to be allowed to look down on licentiates, the M. D.'s + B. A. may look in slightly similar direction on the M. D.'s — B. A.

H. R. writes: I have often noticed that M. D.'s describe themselves on their doorplates as "Dr. —, Physician and Surgeon." Strictly speaking, they are doctors of medicine and surgery, and have no more right to describe themselves as physicians than a licentiate has to describe himself as M. D. They will answer, "An M. D. is a physician." I say he is not, unless a physician or licentiate in medicine is a doctor. Your correspondent wants to gain the advantage of his M. D., and at the same time claim the diploma of physician without earning it. If a degree in medicine were only granted to B. A.'s, as in Dublin, then the graduates might be justified in feeling pride in their knowledge of general literature, but the B. A. is not generally compulsory. "M. D., M. B." suggests that the Medical Defense Union should take the matter up, and proceed against physicians who call themselves "Dr." May I conclude by asking how long that society would last if it followed this suggestion?

"Indian Fire."—Under this heading the *Medical News* for November 4th publishes the following letter from Dr. J. O. Ballard, of Natchez, Mississippi, the chief health officer of Adams County:

"My attention was first called to this disease late last summer, and being unable to properly classify it, I made a study of it. The older physicians call it 'Indian fire,' but seem unable to explain its pathology. Some confound it with variella, and there are cases that resemble this. In the proper place I shall show the points of distinction between the two. 'Indian fire' presents several distinct characteristics, but I have been unable to find a description of it in any text-book or cyclopædia.

"It is best defined as a specific infectious disease of the skin, not accompanied by constitutional disturbance. It begins as a bunch of tiny vesicles thickly studded over a reddened area. There may be one, two, or more bunches, and the vesicles vary in size from that of a mustard seed to that of a bleb from one fourth to five eighths of an inch in diameter. In a few cases I have seen, the vesicles were widespread; but generally they are found only in a circumscribed area. The large vesicles are, probably, aggregations of small ones. There is no pain, no fever, but after the eruption appears the affected area has a peculiar burning sensation; if this be scratched, or the vesicles be broken, the itching is intense.

"The diagnosis is not easy. The affection is often confounded with herpes. But the absence of pain and constitutional disturbance, the length of time the disease lasts, and its undoubted power of infection, clearly distinguish it from herpes.

"It may also be mistaken for varicella, but there are three points of distinction: 1. The entire absence of fever. 2. The course and termination. 3. The location and distribution of the lesions.

"The treatment is important. If seen early, the case is well in five or six days; but if neglected, as is often the case, it hangs on for weeks. I have one case that was not brought to my notice until more than six weeks had elapsed.

"If seen early, and a soothing ointment—ung. zinci oxidi, or an ointment of boric acid, powdered camphor, and lanolin—is applied, with a mild laxative daily, the eruption quickly dries up and forms a scale, which drops off in the bath, leaving a reddened but afterward normal skin, as in herpes. But if

neglected, the blisters and vesicles are broken and the intense itching keeps the parts red, and the irritation increases the flow of serum; the parts are then found constantly bathed in a sticky, gummy fluid. In the cases that have come under my observation the favorite location of the lesions was the face and neck, usually in both places at the same time."

The late Dr. Alfred Ludlow Carroll.—The members of the council of the New York State Medical Association deeply mourn the loss of their beloved, erudite, scholarly, and gentle colleague, Alfred Ludlow Carroll, M.D., who has labored so well and so assiduously for the association, for the profession, and for the people as a wise counselor, as the editor of the association's *Transactions*, as a prolific contributor of scientific material, as a promoter of the honor, dignity, and advancement of medical science, and as one of the foremost sanitarians in the land.

The council has therefore resolved that their high appreciation of the noble qualities and of the scientific accomplishments of their late gifted and lamented colleague be recorded in this volume of *Transactions* and in the medical journals, and that a copy of the foregoing be transmitted to the family of the deceased.

E. D. FERGUSON, M. D., *Secretary*.

Done by the Council, November 4, 1893.

The Death of Dr. Samuel Gilman Priest occurred on October 27th, at Taunton, Mass., where he was visiting at the time of his last illness. Dr. Priest was born in Marlborough, about sixty-six years ago. He was an alumnus of Bellevue Hospital Medical College, of the class of 1877. His home in recent years had been in West Ninety-fourth Street.

The Death of Dr. Charles Wesley Stanley took place in New York on the 26th ultimo. He was born in Conway, N. H. He received his early education at the Oneida Institute, and was graduated in 1866 from the Medical Department of the University of the City of New York. In 1870 he moved to Chicago, where for over twenty years he was actively engaged in the practice of his profession. Dr. Stanley was quiet and retiring in disposition and a devoted student. As a physician he was capable and sympathetic, and by his kindly nature he endeared himself to all with whom he came in contact. He was married in 1869 to Miss Harriet Armstrong, who survives him.

The New York State Association of Railway Surgeons.—

The third annual meeting will be held in the New York Academy of Medicine's building on Wednesday, the 15th inst., under the presidency of Dr. George Chaffee, of Brooklyn, in addition to whose address the programme announces the following: A Dissertation on the Transportation of Persons Ill with Contagious or Infectious Disease, by Dr. G. P. Conn, of Concord, N. H.; The Duties of Chief and Local Surgeons, by Dr. G. J. Northrop, of Marquette, Mich.; The Railway Hospital—its Necessity and Benefits, by Dr. Frank H. Caldwell, of Sanford, Florida; Unjust Verdicts in Civil Damage Suits, by Dr. J. S. Wight, of Brooklyn; The Influence of the Attending Physician in Litigation Cases, by Dr. M. D. Field, of New York; The Evolution of the Railway Surgeon, by Dr. R. S. Harnden, of Waverly, N. Y.; A Peculiar Result of an Injury, by Dr. C. M. Daniels, of Buffalo; Traumatic Ankylosis, by Dr. S. H. Manley, of New York; and Ophthalmology in Railway Surgery, by Dr. J. E. Weeks, of New York.

The Society of Medical Jurisprudence.—At the next meeting, on Monday evening, the 13th inst., the Hon. David McAdam will read a paper on Malpractice. The annual din-

ner will take place at the Hoffman House on Saturday, December 16th.

The Shelby County, Indiana, Medical Society.—At the next meeting, on Monday, the 13th inst., papers will be read as follows: Thorough Knowledge of a Few Remedies, by Dr. J. W. Snider; Palatable Prescribing, by Dr. Samuel Kennedy.

Changes of Address.—Dr. S. Pollitzer, to No. 32 East Sixtieth Street; Dr. F. A. Manning, to No. 203 West One hundred-and-third Street.

The City (Charity) Hospital.—Dr. Robert W. Taylor, whose resignation from the attending staff we announced last week, has been appointed a consulting surgeon to the hospital.

The Death of Sir Andrew Clark, of London, is announced as having taken place on Monday, the 6th inst.

Professor Helmholtz.—The *Union médicale* states that Professor Helmholtz was severely injured on board the steamer *Saale* on his recent return from America.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 22 to November 4, 1893:*

SKINNER, JOHN O., Major and Surgeon, having been found incapacitated for active service on account of disability incident to the service, is, by direction of the President, retired from active service this date, October 26, 1893, under the provisions of Section 1251, Revised Statutes.

IVES, FRANCIS J., Captain and Assistant Surgeon, is relieved from temporary duty with the Medical Section of the War Department Exhibit, World's Columbian Exposition, Chicago, Ill., and will return to his proper station, Fort Sheridan, Illinois.

KULP, JOHN S., First Lieutenant and Assistant Surgeon, now on duty at Columbus Barracks, Ohio, will proceed to Jackson Park, Chicago, Ill., and report in person to the commanding officer, Camp Lamont, for temporary duty with the battalion of troops stationed there.

MUNN, CURTIS E., Major and Surgeon, is hereby granted leave of absence for one month, with permission to apply for an extension of two months.

WYETH, MARLBOROUGH C., Captain and Assistant Surgeon, is relieved from duty at Fort Supply, Indian Territory, and ordered to Army and Navy General Hospital, Hot Springs, Arkansas, for duty.

BENHAM, ROBERT B., Captain and Assistant Surgeon, having relinquished unexpired portion of sick leave, is ordered to Madison Barracks, New York, for duty.

HALLOCK, HARRY M., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort McPherson, Georgia, and ordered to Fort Bayard, New Mexico, for duty, relieving First Lieutenant and Assistant Surgeon Philip G. Wales. First Lieutenant Wales, on being relieved by Lieutenant Hallock, is ordered to Fort McPherson, Georgia, for duty.

BIRMINGHAM, H. P., Captain and Assistant Surgeon. The leave of absence granted is extended twenty-three days.

LYNCH, CHARLES, First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Omaha, Nebraska, and ordered to Fort Robinson, Nebraska, for duty at that station, relieving EVERTS, EDWARD, Captain and Assistant Surgeon. Captain Everts, on being relieved by Lieutenant Lynch, is ordered to Whipple Barracks, Arizona, for duty, relieving POPE, BENJAMIN F., Major and Surgeon. Major Pope, on being relieved by Captain Everts, is ordered to Angel Island, California, for duty, relieving HALL, WILLIAM R., Captain and Assistant Surgeon. Captain Hall, on being relieved by Ma-

for Pope, will report for duty as Attending Surgeon, Headquarters Department of California and Examiner of Recruits at San Francisco, Cal.

TILTON, HENRY R., Lieutenant Colonel and Deputy Surgeon General, is relieved from duty at Fort Wayne, Michigan, and ordered to Fort Omaha, Nebraska, for duty at that post.

MAUS, LOUIS M., Major and Surgeon, is relieved from duty at Whipple Barracks, Arizona, and ordered to Fort Sam Houston, Texas, for duty, relieving DE WITT, CALVIN, Major and Surgeon. Major De Witt, on being relieved by Major Maus, is ordered to Fort Leavenworth, Kansas, relieving BROOKE, JOHN, Major and Surgeon. Major Brooke, on being relieved by Major De Witt, is ordered to Philadelphia, Pa., to await orders.

MIDDLETON, JOHNSON V. D., Lieutenant Colonel and Deputy Surgeon General. The leave of absence granted is extended fifteen days.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Five Weeks ending October 21, 1893:*

FRESSENFEN, C. D., Surgeon. Granted leave of absence for thirty days. October 4, 1893.

BALHAUCHE, P. H., Surgeon. Detailed as delegate to meeting of the American Public Health Association. October 5, 1893.

VANSANT, JOHN, Surgeon. Granted leave of absence for thirty days. September 23, 1893.

HUTTON, H. H. Surgeon. Detailed as chairman of board to inspect Gulf Quarantine Station. October 17, 1893.

HAMILTON, J. B., Surgeon. Granted leave of absence for three days. October 2, 1893.

GASSAWAY, J. M., Surgeon. Detailed as member of a board to inspect Gulf Quarantine Station. October 17, 1893.

MEAD, F. W., Surgeon. To rejoin station (Washington, D. C.). September 19, 1893.

CARTER, H. R., Surgeon. To proceed to Way Cross, Ga., for temporary duty. October 4, 1893.

KALLOCH, P. C., Passed Assistant Surgeon. Granted leave of absence for twenty days. October 9, 1893.

BROOKS, S. D., Passed Assistant Surgeon. To proceed to Chicago, Ill., for temporary duty. September 19, 1893.

GOODWIN, H. T., Passed Assistant Surgeon. Granted leave of absence for thirty days. September 27, 1893.

COBB, J. O., Passed Assistant Surgeon. Granted leave of absence for thirty days. October 11, 1893.

GUITÉRAS, G. M., Passed Assistant Surgeon. Detailed as recorder of a board to inspect Gulf Quarantine Station. October 17, 1893.

WERTENBAKER, C. P., Passed Assistant Surgeon. Granted leave of absence for seven days. September 26, 1893.

PERRY, J. C., Passed Assistant Surgeon. Granted leave of absence for seven days. October 5, 1893.

GARDNER, C. H., Assistant Surgeon. To proceed to Port Townsend, Wash., for temporary duty. October 7, 1893.

NYDEGGER, J. A., Assistant Surgeon. To proceed to Way Cross, Ga., for temporary duty. October 8, 1893.

NORMAN, SEATON, Assistant Surgeon. Granted leave of absence for four days. October 4, 1893.

SPRAGUE, E. K., Assistant Surgeon. Granted leave of absence for three days. October 7, 1893.

Society Meetings for the Coming Week:

MONDAY, November 13th: New York Academy of Medicine (Section in General Surgery); Lenox Medical and Surgical Society (private); New York Ophthalmological Society

(private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club (annual); Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, November 14th: Southern Surgical and Gynecological Association (first day—New Orleans); New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Society of the County of Rensselaer, N. Y.; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Newark, N. J., and Trenton (private), N. J., Medical Associations; Camden, N. J., County Medical Society (semi-annual—Camden); Norfolk, Mass., District Medical Society (Hyde Park); Baltimore Gynecological and Obstetrical Society; Northwestern Medical Society of Philadelphia; Practitioners' Club, Richmond, Ky.; Richmond, Va., Academy of Medicine and Surgery.

WEDNESDAY, November 15th: Southern Surgical and Gynecological Association (second day); Harlem Medical Association of the City of New York; Northwestern Medical and Surgical Society of New York (private); Medico-legal Society, New York; New Jersey Academy of Medicine (Newark).

THURSDAY, November 16th: Southern Surgical and Gynecological Association (third day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, November 17th: Baltimore Clinical Society; Chicago Gynecological Society.

SATURDAY, November 18th: Clinical Society of the New York Post-graduate Medical School and Hospital.

Answers to Correspondents:

No. 447.—1. The physician can bring suit for the full amount of his bill. 2. That depends on the jury's finding. 3. Obtain the services of a lawyer. 4. They are prone to exercise such power, and there is no remedy save in a suit. 5. Under the common law, no, but there may be a statute covering the point in your State; if there is, it is probably unconstitutional.

Letters to the Editor.

THE QUESTION OF THE INFECTIOUSNESS OF "MEMBRANOUS CROUP."

HEALTH DEPARTMENT, 301 MOTT STREET,
NEW YORK, November 3, 1893.

To the Editor of the New York Medical Journal:

SIR: The accompanying report by the chief inspector of the Division of Pathology, Bacteriology, and Disinfection of this department is of very great interest to the medical profession and of great importance to the community. The board of health requests the co-operation of the physicians of this city in order to definitely establish or refute the contagiousness of so-called membranous croup. The fact that in a large majority of the cases of membranous croup (not apparently involving the pharynx) examined bacteriologically by the officers of this department swabs infected with the pharyngeal secretions were shown to contain the Loeffler bacillus tends to the conclusion that membranous croup is laryngeal diphtheria, and that, as is shown in the report, it is liable to cause cases of like character or of diphtheria of the ordinary type. Before declaring the

disease contagious and classing it among the transmissible diseases which must, under the law, be reported to the board of health, the board desires to have the results of the bacteriological investigation of a large number of cases of membranous croup tabulated, in order to base its action on irrefutable premises. The only way that this can be done is through the voluntary report to this department by physicians of cases of membranous croup that may occur in their practice.

Therefore the board respectfully requests physicians to report cases of membranous croup under that name, in the same manner that they report cases of contagious disease. The data already obtained are sufficiently convincing to cause this request to the profession to treat membranous croup as a contagious disease: that is, to advise isolation and disinfection the same as in a case of diphtheria.

CYRUS EDSON,

Commissioner, and Chairman of the Sanitary Committee of the Board of Health of New York City.

HEALTH DEPARTMENT, 301 MOTT STREET,
NEW YORK, November 1, 1893.

The Hon. Charles G. Wilson, President:

SIR: In compliance with your request I have the honor to submit the following report of the results of the bacteriological examinations made in cases of so-called membranous croup. These are cases from which cultures have been referred to this department for examination because of the suspicion that they were of a diphtheritic nature.

During the last four months bacteriological examinations have been made in thirty-six cases of this kind. In all of these the membrane was either confined entirely to the larynx, or at most only slight deposits existed in the throat, while there was very extensive exudation in the larynx. In thirty of the cases the Loeffler bacillus of diphtheria was abundantly present. These cases therefore were really cases of laryngeal diphtheria. In six cases no Loeffler bacilli were found; these were therefore cases of catarrhal pseudo-diphtheritic inflammation of the larynx, and are to be considered analogous to similar pseudo-membranous inflammations (non-diphtheritic) in the pharynx.

In five of the laryngeal cases in which the Loeffler bacillus was found, cases of pharyngeal diphtheria both preceded and followed within a week in the immediate vicinity. In three other instances the cases of croup were preceded by cases of true diphtheria, and in seven instances were followed by cases of true diphtheria.

In the remaining fifteen cases of membranous croup pharyngeal diphtheria neither preceded nor followed in the immediate vicinity. None of the six cases of croup in which no Loeffler bacilli were found were followed or preceded by cases of diphtheria.

During the last four months, therefore, nearly eighty-four per cent. of the cases of so-called membranous croup referred to this department for bacteriological examination have proved to be diphtheria.

Respectfully,

HERMANN M. BRIGGS, *Chief Inspector.*

AMPUTATION AT THE HIP JOINT.

To the Editor of the New York Medical Journal:

SIR: While a minor paragraph of your issue of November 4th, upon the subject of the amputation at the hip joint, is mainly correct in the lines quoted from Professor Murdoch's excellent paper in the *Annals of Surgery* (January, 1893), the construction of the paragraph is, I think, calculated to mislead. Professor Murdoch says: "It was reserved for our countryman, Dr. John A. Wyeth, to devise what he has well named the bloodless method. I believe this method to be the best and

the one destined to supersede all other methods for the temporary arrest of hæmorrhage."

The method of operating known as that of Fourneau-Jordan, referred to in your paragraph, has *nothing to do with the prevention of hæmorrhage*, but relates to the method of making the flaps.

This same method of cutting the skin and soft parts is also frequently referred to as Diefenbach's. The truth is that Diefenbach did not receive his degree in medicine until sixteen years after Dr. Walter Brashear, of Kentucky, had done this operation successfully. "A circular incision was made, the muscles divided well below the hip joint, and the vessels secured as the operation progressed. Then a longitudinal incision along the outer side of the limb exposed the remainder of the bone, which, being freed from its muscular attachments, was disarticulated at the socket." This was in August, 1806 (*American Practitioner and News*, Professor David W. Yandell, 1890). The name of Brashear should forever be associated with this brilliant operation.

JOHN A. WYETH, M. D.

ATHETOSIS DUE TO TRAUMATISM.

LINCOLN, NEB., October 20, 1893.

To the Editor of the New York Medical Journal:

SIR: In your issue of October 7th there is an article by Dr. T. J. McGillicuddy on Athetosis, which recalls to my mind a patient that came under my observation about five years ago. As this sketch is written entirely from memory, I have not attempted to give any of the minute details. I saw the patient but once, and then for only a short time. As the parents were in no condition to place her in a suitable position for treatment, I made no record of the case. The patient, a girl about fourteen or fifteen years of age, well nourished and fully developed, was greatly troubled with athetoid spasms on the right side, most severe in the right forearm and hand. Both sides of the body appeared equally developed. When the spasms came on the forearm and hand were rotated inward so as to nearly or quite inscribe an arc of 180°, so that the palmar surface of the hand turned outward. At times the spasms would completely relax, but when they were most severe, if the arm and hand were thoroughly rubbed for a few seconds, the spasm would be relieved and the limb would remain for some little time perfectly natural. The lower right limb and foot were also turned in, although not to the same extent as the hand and arm. Mentally the girl appeared perfectly normal and answered all questions put to her readily and as intelligently as most girls would have done at her age. Now as to the cause given by the parents. When she was about five years of age a fork tine was accidentally run into the inner canthus of the left eye for nearly two inches. In a few hours after, the girl was found to be completely paralyzed on the right side. This condition continued for several weeks, when the child, without any treatment, gradually regained the use of her arm and leg, only to have substituted for the paralysis the athetoid condition above described. To me it seems perfectly clear that the athetosis in her case was due to the traumatism.

H. S. ALEY, M. D.

INFANTILE CONVULSIONS.

CHICAGO, October 30, 1893.

To the Editor of the New York Medical Journal:

SIR: Apropos of the article on Infantile Convulsions by M. Jules Simon, summarized in the *Journal* for October 28th, I would offer the *hypodermic injection* of five grains of chloral hydrate for an infant aged two years as a most gratifying mode of treatment in these trying cases.

J. P. PRESTLEY, M. D.

Book Notices.

Beiträge zur Augenheilkunde; herausgegeben von Prof. Dr. R. DEUTSCHMANN in Hamburg. Hamburg: Leopold Voss, 1891-1893. Hefte iii to x.

THESE are brochures of varying size which have appeared at irregular intervals during the last two years. They contain a very interesting series of articles by various German authors. Professor Fuchs, of Vienna, reports an interesting case of simultaneous inflammation of the lacrymal and parotid glands, occurring in a man aged sixty-one years. In both glands the tissue of the nodular tumors closely resembled the lymphoid tissue of trachoma follicles.

In an article* by Professor Haab, of Zurich, upon the treatment of infantile glaucoma or hydropthalmia, he highly recommends sclerotomy as the most certain method of treatment and the most lasting in its effects.

Another interesting paper is by Pedraglia, of Hamburg, on the disturbances in the domain of the ocular nerves produced by poisoning with diseased ham. The first symptom to appear is paralysis of accommodation, and this is rapidly followed by paresis of the muscles of the throat. Then follow mydriasis, diplopia, and ptosis. Most of the cases, if promptly treated, end in recovery. A brief article by Lindemann on the pseudotumors of the interior of the eye is based upon two cases of cataract extraction, in which, shortly after the operation, symptoms of an intra-ocular growth appeared, the most marked being a glistening, grayish-yellow reflex from the fundus, simulating tumor. In both cases this proved to be due to portions of swollen cortex of the lens left behind in the vitreous humor.

Haab, of Zurich, publishes an exceedingly interesting article on hæmorrhages between the retina and the vitreous, based upon a series of six cases and illustrated by six beautiful chromolithographic plates. Another timely article is by Deutschmann himself on acute retrobulbar neuritis of rheumatic origin, based on a series of seven cases. In all the cases the visual defect appeared suddenly, and was accompanied by pain on movements of the eyeball. The defect in the visual field varied among central, peripheral, and sector-like peripheral defects. In all cases there was color-blindness more or less marked. The ophthalmoscope showed in all cases a decided change in color and appearance of the disc. In one case there was a relapse accompanied by paralysis of the abducens. The treatment which proved the most efficacious was the administration of sodium salicylate and potassium iodide.

In an article by Müller, of Vienna, on a new anomaly of the iris, he described a condition which he calls vitiligo iridis, and which he considers to be an arrest of development belonging to a late period in the development of the organ and confined to a single portion of it. The condition consists of numerous spots scattered all over the iris, corresponding to pits in the stroma. These spots are bluish-gray or grayish-white in color, varying in size from a pin's head upward. The pigment layer is wanting in patches, and here the iris stroma is noticeably thinner. It is a sort of circumscribed achromasia in the pigmentary layer of the iris.

Part X is entirely devoted to a detailed account of the experiments and observations of Deutschmann in regard to the so-called ophthalmia migratoria, and is beautifully illustrated. This article, though long, will amply repay the time spent in its perusal. The experiments have been very carefully made, and the microscopical examinations have been most painstaking.

Another interesting microscopical paper is by Kamocki, upon hyaline degeneration of the conjunctiva, and this is also finely illustrated with colored drawings.

In Part IX embryology is finely illustrated in a paper by Vossius, on congenital anomalies of the eye.

Electricity in Diseases of Women and Obstetrics. By FRANKLIN H. MARTIN, M. D., Professor of Gynecology, Post-graduate Medical School of Chicago, etc. With Illustrations. Chicago: The W. T. Keener Company, 1893. Pp. xiv-278. [Price, \$2.]

THE first four chapters of this work are devoted to a consideration of electricity, including its various forms of magnetism and static and dynamic electricity, as well as the physical properties of the galvanic current. The better-known galvanic cells are then described, and directions are given regarding the selection of currents. Brief chapters are devoted to the galvanic current generated by mechanical energy, to the faradaic current, to the storage battery, to portable and office batteries, to the cautery battery, to the various rheostats employed to control the current that may be taken from an incandescent current used for street lighting, to the galvanometer and milli-ampèremeter, and to poles, cords, and electrodes. It may thus be seen that the author does not assume that his reader is acquainted with the elementary facts of electricity, but presents them in a compact and easily understood manner, these chapters forming the first part of the volume.

The second part first describes electrolysis as a preliminary to the description of Apostoli's method of treating fibroids and the author's modifications thereof. He advocates the necessity of having electrodes of a certain size with certain current-strength, and maintains that by this means he can with a moderate current accomplish accurately and comparatively painlessly the same work at a few sittings that is accomplished at one sitting with a large and painful current. The usual classification of fibroids is given, and attention is called to the different action of electricity on the different forms of these neoplasms. The author gives the histories of a number of patients treated successfully and unsuccessfully by the Apostoli method, and he does not advocate a general employment of this method of treatment.

The treatment of chronic endometritis, chronic endotrachealitis, and uterine hyperplasias by galvanism is carefully described, and the application of this therapeutic procedure is recommended for certain forms of subinvolution and the so-called pelvic cellulitis.

There is a description of the galvanic treatment of uterine, urethral, and rectal strictures and of hæmorrhoids.

A brief chapter is devoted to the treatment of cancer by electricity.

The scope of faradization in gynecology is considered in several chapters.

There are short chapters on the use of the galvano-cautery in gynecology, on the electric bath, and on static electricity.

The author's tone throughout the work is temperate, and the volume will give much valuable and suggestive information to those that have to do gynecological work.

Essentials of Minor Surgery, Bandaging, and Venereal Diseases. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine. By EDWARD MARTIN, A. M., M. D., Clinical Professor of Genito-urinary Diseases in the University of Pennsylvania, etc. Second Edition, revised and enlarged. Seventy-eight Illustrations. Philadelphia: W. B. Saunders, 1893. [Price, \$1.] [Saunders's Question Compende, No. 12.]

THE author has taken the opportunity of the appearance of a second edition of this manual to give it such revision as was

requisite to bring it up to the present standard of surgical practice. A number of new illustrations have been added, that have been obtained from the *American Text-book of Surgery*.

Stricture of the Urethra. By G. FRANK LYDSTON, M. D., Professor of the Surgical Diseases of the Genito-urinary Organs in the Chicago College of Physicians and Surgeons, etc. With Seven Full-page Plates and Eighty-five Woodcuts. Chicago: The W. T. Keener Company, 1893. Pp. viii+2 to 334. [Price, \$3.]

THE author states in his modest preface that this volume is essentially a series of class-room lectures upon urethral stricture, unpadded with what he is pleased to denominate the rubbish from the literary dead lumber room.

The lectures, or chapters as they are arranged in this volume, show the author's original method of presenting his facts. In the first chapter, on the anatomy of the urethra, for example, he calls attention to the reason for the disparity in the reported observations on the length of the urethra as being due to the mental condition of the patient and the methods of the observer, summing up his facts in the epigrammatic statement that each urethra is a law unto itself as far as its length is concerned. Or, again, when deprecating what he designates as the "stove-pipe" surgery that assumes that the urethra is a canal through which any instrument ought to go and should be made to go, he urges consultation with a specialist unless the treatment of the case by the general practitioner is likely to prove profitable to the patient as well as to the physician. And the author's statement is not entirely extravagant that "the unfortunates who have been slain or hopelessly crippled by a dirty catheter or sound, in the hands of a dirtier doctor, might, if the truth were known, rival in number those troops of shades with uncured gleet whom Ricord said he met in Purgatory."

The pathology, ætiology, and general treatment of stricture are presented in consonance with our present knowledge, and separate chapters are devoted to dilatation, to division and urethrotomy, to electrolysis, and to the complications and secondary results of stricture.

It is a pleasure to commend the section on urethral fever, that will certainly make the ætiology of this symptom more comprehensible to the student. But we think that the author is too radical when he recommends division or urethrotomy in cases in which urethral fever follows each operation of dilatation. That the urethral fever occurs is sufficient indication of the existence of autogenetic toxæmia, and until the latter is corrected by appropriate general treatment no operative procedure should be instituted. It is the failure to attend to this latter important point that has so often resulted in a fatal issue after urethrotomy or division. The latter operation is described, but the author wisely advises against the employment of what has never been better than an unsurgical procedure, except in a limited class of cases; and we believe in those he is following precedent rather than his better judgment, for external urethrotomy seems to be preferable to division in all forms of stricture of the deep urethra.

The author's presentation of his subject is clear and comprehensive, and the work is necessary to any one desiring the latest information relative to stricture.

The Clinical Use of Prisms and the Decentering of Lenses. By ERNEST E. MADDOX, M. D. Second Edition, revised and enlarged. Bristol: John Wright & Co., 1893.

THE second edition of this little work fully maintains the reputation accorded to the first edition. The first ten chapters con-

tain the purely scientific part of the work, consisting of a statement of the geometrical and optical properties of prisms, the laws of prismetry, prismatic aberration, a description of the various rotating prisms in use, the clinical properties of prisms, and the rules for the decentering of lenses. Chapters XI, XIII, and XIV are especially valuable to the practicing ophthalmologist. Chapter XI, devoted to the study of convergence, is a most admirable presentation of our present knowledge on this subject. Maddox believes that the so-called "muscular asthenopia" of von Graefe is really a central asthenopia in which there is a waste of co-ordinating nervous energy which can be relieved by prisms with their edges out, which lessen the convergence necessary for single vision. He believes it desirable to relieve only a certain portion of the reflex convergence. In every case it is better to study the principles of convergence than to make rules of too arbitrary a nature, for in many cases convex lenses are indicated rather than prisms. The discussion upon "initial convergence," based upon the recognition of a physiological tone in the ocular muscles, is very practical and simple. He believes that divergence, instead of parallelism, is the natural anatomical position of the eyes. The section on accommodative convergence is very simple, and the tests for its examination and recognition are easily made. Maddox's explanation of the benefit derived from the so-called "Dyerizing" plan of treating latent deviations is that it simply trains the efforts of accommodation and convergence to assume broader relations to each other in their work, and in this he is probably correct. His description of the methods employed for deciding the presence or absence of binocular vision is extremely clear and satisfactory, and has the additional advantage of being very brief. The volume is of a convenient size and extremely well printed.

Essentials of Bacteriology: being a Concise and Systematic Introduction to the Study of Micro-organisms for the Use of Students and Practitioners. By M. V. BALL, M. D., Physician to the Eastern State Penitentiary at Philadelphia. Second Edition. With Eighty-one Illustrations, some in Colors, and Five Plates. Philadelphia: W. B. Saunders, 1893. [Price, \$1.] [*Saunders's Question Compende.*]

IN the new edition of this compendium the author has incorporated the discoveries that have been made in bacteriology during the year that elapsed between the appearance of the first and the preparation of the second edition. The author has been very careful in his work, exercising good judgment in the selection of the facts that he has incorporated, and the volume will undoubtedly prove very useful for the purposes for which it is intended.

Minor Surgery and Bandaging, including the Treatment of Fractures and Dislocations, Tracheotomy, Intubation of the Larynx, Ligation of Arteries, and Amputations. By HENRY R. WHARTON, M. D., Demonstrator of Surgery and Lecturer on Surgical Diseases of Children in the University of Pennsylvania, etc. Second Edition, thoroughly revised and enlarged, with Four Hundred and Sixteen Illustrations. Philadelphia: Lea Brothers & Co., 1893. Pp. viii+13 to 529. [Price, \$3.]

THE appearance of a second edition of this work two years after its first publication is an evidence of the professional appreciation of the volume that was predicted in our review of the first edition.

In this edition the author has added sections on the transverse recurrent bandage, on the occipito-frontal bandage, on the arm-and-chest bandage, on the spica bandage of the buttock, on the flannel bandage, on iodol, on bone grafting, on the

use of evaporating lotions in the treatment of fractures, and on Wyeth's method of hip amputation. He has revised the section on the aseptic and antiseptic treatment of wounds, bringing it to the standard of the surgical procedure of to-day.

A number of illustrations have been added, and some new ones have been substituted for those formerly employed.

The volume is complete and in every way worthy of the popularity that has been accorded it.

The Throat and Nose, and their Diseases. With One Hundred and Twenty Illustrations in Color, and Two Hundred and Thirty-five Engravings, designed and executed by the Author, LENNOX BROWNE, F. R. C. S. E., Senior Surgeon to the Central London Throat and Ear Hospital. Fourth Edition. Philadelphia: Lea Brothers & Co., 1893. Pp. xx-734.

The new edition of this standard work, the author states, is necessary because the last edition has been out of print for two years. Profiting by this fact, he has taken the opportunity of revising some details so as to keep the work fully abreast of the recent accessions to laryngological knowledge. The revision is especially noticeable in the section on diseases of the nose, and the author urges that in the condition of the nasal fossa, that constitute the first avenues of the natural breathway, is to be found the key to a right understanding and successful treatment of the majority of faucial, pharyngeal, and laryngeal diseases.

The present edition fully sustains the excellent reputation that this work possesses.

A Practical Treatise on Diseases of the Skin, for the Use of Students and Practitioners. Third Edition, thoroughly revised and enlarged. By JAMES NEVINS HYDE, A. M., M. D., Professor of Skin and Venereal Diseases, Rush Medical College, Chicago, etc. Philadelphia: Lea Brothers & Co., 1893. Pp. xix-17 to 802.

It is but ten years since the first edition of this work was published, and yet so thorough has the author's revision been, so numerous are the additions, that the present volume may virtually be considered a new work.

As in the former editions, the author has adhered, in the main, to the classification of skin diseases adopted by the American Dermatological Association.

Among the additions are sections on scarlatiniform erythema, a term designating several different conditions; on dermatitis gangrenosa; on pityriasis rubra pilaris; on epidemic exfoliative dermatitis (Savill's disease); on the parasitic varieties of eczema; on pemphigus vegetans; on keratosis follicularis; on acanthosis nigricans; on angeioneurotic oedema; on acromegaly; on alopecia follicularis; on xanthoma diabeticorum; on leukokeratosis buccalis; and on actinomycosis. The section on tuberculous affections of the skin has been rewritten so as to incorporate the results of the latest investigations on tuberculosis. Thirty-five new diseases are considered in the present edition.

The illustrations have been increased by five plates and twenty-two woodcuts, and they fully sustain the excellent character of the illustrations in the former editions.

The work in its present form can not but continue the reputation it has gained of being one of the foremost of American text-books on dermatology.

A Treatise on the Science and Practice of Midwifery. By W. S. PLAYFAIR, M. D., LL. D., F. R. C. P., Physician-Accoucheur to H. I. and R. H. the Duchess of Edinburgh, etc. Sixth American from the Eighth English Edition. With

Notes and Additions by ROBERT P. HARRIS, A. M., M. D., Honorary Fellow of the American Gynecological Society and of the Philadelphia Obstetrical Society, etc. With Five Plates and Two Hundred and Seventeen Illustrations. Philadelphia: Lea Brothers & Co., 1893. Pp. xx-33 to 697.

THE American editor is well and favorably known as a careful student of this specialty and a patient collector of its statistics. The appearance of this edition, four years after the publication of its predecessor, has enabled Dr. Harris to report the more important advances in those obstetrical methods intended to save the life of the mother and of the child. In this respect the editor and the author are at variance, for the former is an advocate of the conservative surgery attained by Cæsarean section and symphysiotomy rather than the destructive surgery of craniotomy, that is inapplicable to any of a large number of our fellow-countrywomen, because it is forbidden by the Roman Catholic Church.

Dr. Harris's collected statistics of Cæsarean section show that it has saved ninety per cent. of the women, only two out of the last twenty operations in the United States having resulted fatally to the mother. The subperitoneal procedure of the Porro-Cæsarean method showed a mortality of only fourteen per cent. in 1891.

The statistics of symphysiotomy from 1886 to June 1, 1893, show that twenty-five women and thirty-seven children were lost in two hundred and five symphysiotomic deliveries. Dr. Harris does not consider that the danger is from any injury done to the sacro-iliac synchondroses, but rather from the risk of septic poisoning from the wound in the symphysis or from lacerations of the cervix, vagina, or perineum.

The present edition fully sustains the excellent reputation of this standard work.

Anatomy, Descriptive and Surgical. By HENRY GRAY, F. R. S., Fellow of the Royal College of Surgeons, Lecturer on Anatomy at St. George's Hospital Medical School. The Drawings by H. V. CARTER, M. D., late Demonstrator of Anatomy at St. George's Hospital. With Additional Drawings in Later Editions. A New American from the Thirteenth English Edition. Edited by T. PICKERING PICK, Surgeon to and Lecturer on Surgery at St. George's Hospital. Philadelphia: Lea Brothers & Co., 1893. Pp. 24-33 to 1129.

THE thirteenth edition of this well-known work needs no more commendation at our hands than its predecessors have received. Apparently anatomies may come and anatomies may go, but this is perennially a favorite and will go on forever. The only criticism we are tempted to make is that in the section on the spinal cord the surgical anatomy of the different regions is not mentioned. Many of the cuts have been re-engraved, and the volume is an admirable specimen of the engraver's and printer's art.

BOOKS, ETC., RECEIVED.

Supplement to the Reference Handbook of the Medical Sciences. By Various Writers. Illustrated by Chromolithographs and Fine Wood Engravings. Edited by Albert H. Buck, M. D., New York city. Vol. IX. New York: William Wood & Company, 1893. Pp. vii-1076.

A Treatise on the Science and Practice of Midwifery. By W. S. PLAYFAIR, M. D., LL. D., F. R. C. P., Physician-Accoucheur to H. I. and R. H. the Duchess of Edinburgh, etc. Sixth American from the Eighth English Edition. With Notes and Additions by Robert P. Harris, A. M., M. D., Honorary Fellow of the American Gynecological Society and of the Philadel-

phia Obstetrical Society, etc. With Five Plates and Two Hundred and Seventeen Illustrations. Philadelphia: Lea Brothers & Co., 1893. Pp. xx-33 to 697.

A Practical Treatise on Diseases of the Skin, for the Use of Students and Practitioners. Third Edition, thoroughly revised and enlarged. By James Nevins Hyde, A. M., M. D., Professor of Skin and Venereal Diseases, Rush Medical College, Chicago, etc. Philadelphia: Lea Brothers & Co., 1893. Pp. xix-17 to 802.

Syphilis: its Treatment by Intramuscular Injections of Soluble Mercurial Salts. By Edward Cotterell, F. R. C. S. Eng., etc. London: John Bale & Sons, 1893. Pp. 7-36.

Some Checks to the Introduction of the Cold-bath Treatment. By Dr. Charles E. Page, of Boston. [Reprinted from the *Journal of Balneology*.]

A Plea for the Appropriation of Criminals, condemned to Capital Punishment, to the Experimental Physiologist. By J. S. Pyle, M. D., Canton, Ohio. (Read before the Tri States Medical Association, Peoria, Ill., October 3, 1893.)

Hysterical Aphonia. By W. Scheppegegrell, A. M., M. D., New Orleans, La. [Reprinted from the *Medical News*.]

The Strongly Counterirritant Effects of the Usual Mastoid Operation. By Albert H. Buck, M. D., New York. [Reprinted from the *Transactions of the American Otological Society*.]

The Deadly and Minor Poisons of Toadstools. By Charles Mellvane, Haddonfield, N. J. [Reprinted from the *Therapeutic Gazette*.]

Four Successful Nephrectomies. With Remarks. By Maurice H. Richardson, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal*.]

A Contribution to the Surgery of the Gall-bladder. By Maurice H. Richardson, M. D., Boston. [Reprinted from the *Annals of Surgery*.]

Double Synchronous Amputation of Both Legs in an Infant; Recovery. By Gregory Doyle, M. D., Syracuse, N. Y. [Reprinted from the *Buffalo Medical and Surgical Journal*.]

The After-treatment of Cataract Extraction. By William Oliver Moore, M. D., New York. [Reprinted from the *Medical News*.]

A Consideration of the Paræsthetic Neurosis. By Joseph Collins, M. D., New York. [Reprinted from the *Boston Medical and Surgical Journal*.]

An Analysis of One Hundred and Twenty-five Cases of Chorea. By Joseph Collins, M. D., New York. [Reprinted from the *Post graduate*.]

Perityphilitis. Report of Three Cases of Perforating "Cæcitis" and "Pericæcitis." By F. C. Schaeffer, M. D., Chicago. [Reprinted from the *Chicago Clinical Review*.]

The Role of the Posterior Urethra in Chronic Urethritis. By Bransford Lewis, M. D., St. Louis. [Reprinted from the *Medical Record*.]

A Preliminary Note on the Treatment of Inoperable Sarcoma by the Toxic Products of Erysipelas. By William B. Coley, M. D., New York. [Reprinted from the *Post-graduate*.]

Sarcoma of the Pia and Brain, simulating Brain Tumor; Monospasm and Monoparesis; Operation. Death on the Third Day. By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *Journal of the American Medical Association*.]

Some Points in the Diagnosis and Treatment of Intracerebral Hæmorrhage and in the Treatment of Chorea. By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *Medical News*.]

Eleventh Annual Report of the Provincial Board of Health of Ontario. Being for the Year 1892.

The Operative Treatment of Hernia in Children. With a Report of Fifty-one Cases. By William B. Coley, M. D., New York. [Reprinted from the *Medical Record*.]

New Inventions, etc.

A NEW PORTABLE APPARATUS FOR STERILIZING EYE INSTRUMENTS BY BOILING IN WATER.—AN ALUMINIUM SHIELD FOR PROTECTING THE EYE AFTER CATARACT EXTRACTION.

By JOSEPH A. ANDREWS, M. D.,

OPHTHALMIC SURGEON TO CHARITY HOSPITAL, NEW YORK.

THE apparatus figured here is intended to serve a useful purpose in sterilizing eye instruments by boiling in water, especially when important operations are done at the homes of patients. The apparatus occupies so little space that it can readily be carried in a small satchel, and is at all times ready for use.

Fig. A represents a ground plan of the entire apparatus. 1 is the outer box for containing the boiler (2) and tray (3), the

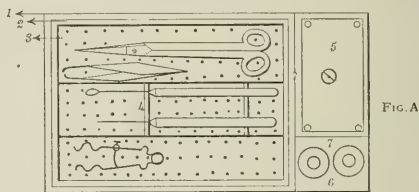


FIG. A



FIG. B



FIG. D

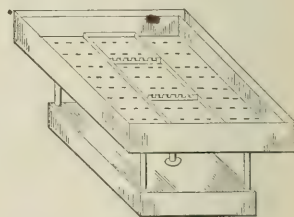


FIG. C

FIG. D.—1, Hollow ground stopper drawn out into a tube which terminates in a smooth curved point at 2. The rubber nipple, 3, serves to draw up and inject the fluid contained in the bottle. The ground stopper, 4, closes the hollow stopper, 1, and prevents the fluid in the bottle from becoming contaminated by contact with the rubber nipple, 3, when the bottle is transported. The collar, 5, protects the mouth of the bottle from collections of dust, etc.

latter with a rack and perforated bottom, for receiving the instruments. The boiler (2) has its own cover; it is intended for the instruments only. It is therefore quite distinct from the

other things in the outer case—i. e., lamp, bottles, etc.—the outer case being merely intended to keep everything together.

Fig. B represents the entire apparatus inclosed in its case.

Fig. C shows the tray in the boiler, in place over the lamp, ready for use.

Fig. D shows the bottle used for solutions of cocaine, atropine, and one-per-cent. chloride of sodium. The latter solution is, when boiled, intended for washing out the conjunctival *cul de sac*, thus mechanically cleansing the surface of the mucous membrane.

The solutions are boiled in these bottles; the bottles must, therefore, be blown, not cast in a mold. The bottle is fashioned on a small scale after the one devised by myself for syringing out cortical matter after cataract extraction (see *Transactions of the American Ophthalmological Society*, 1892, p. 455).

Dimensions.—Tray for instruments, five inches wide, six inches long. The rack for the instruments is detachable. The case containing boiler, lamp, etc., is eight inches long, five inches wide, and an inch and five sixteenths deep.

In preparing instruments for an operation, boiling water is poured directly from the kettle into the boiler, and the instruments (except the cataract knife and keratome, which are simply dipped several times in the boiling water and repeatedly firmly wiped with absorbent cotton) are boiled for three minutes. The tray containing the instruments is then lifted out of the water,

the latter at the same time running back into the boiler through the perforated bottom in the tray. The tray, covered, is laid on a clean towel on the table, and in a few seconds the instruments are cool and ready for use.

The shield, represented in Fig. E, is designed to protect the eye against injury after cataract extraction, etc. Being made of thin sheet aluminium, it is very light, and readily bent, if necessary, to adapt it to the shape of the head.

The gauze or flannel bandage having been applied, the shield is held in place

over this by means of a tape which passes through the apertures in its upper part, no sewing being necessary for this purpose.

The apparatus is manufactured by Messrs. Bramhall, Deane, & Co., 264 Water Street, New York, and E. C. Meyrowitz, West Twenty-third Street, who also manufacture the shield.

9 WEST TWENTY-SECOND STREET.

A NEW ETHER INHALER.

By STUYVESANT F. MORRIS, M. D.

So many inhalers for the administration of ether have been presented to the profession that it is with hesitation I offer another. Probably the inhaler most generally used and the best is the Alais. When this latter becomes soiled the bandage has to be changed; the length of time required to do this is a serious objection. The inhaler I present consists of an oblong box five inches and a half long, two inches and a half wide, and three quarters of an inch deep, with perforated covers. Into this are placed a handkerchief or piece of gauze, and a rubber cone five

inches and a half deep, having on the inner side, two inches from the bottom, an elbow of rubber. This is to prevent the box from slipping out of the cone. Etherization with a closed cone, so generally used in our hospitals, is, I think, very objec-



W. F. FORD & CO. N. Y.

tionable, in that asphyxiation is often produced. This one allows a free admixture of air if it is desired. It can be readily cleaned if soiled during an operation by taking out the gauze and washing the box and cone. This can be done in a few seconds. Its size is such that it can be carried in a box or a small satchel. It is so simple in construction that it can not get out of order.

The accompanying cuts show the cone inside out, displaying the rubber elbow. The box, however, is represented without a cover.

16 EAST THIRTIETH STREET.

Miscellany.

The Importance of Early Attention to the Disability caused by Infantile Paralysis.—At a meeting of the New York Academy of Medicine held on November 2d Dr. A. B. Judson read the following paper:

I propose to consider briefly the question whether a certain class of patients should not be committed more entirely and more early than they are to the care of the orthopedic surgeon—a consideration as interesting to the family physician as to the orthopedist, as they meet in a friendly alliance to secure the greatest benefit for their common patient.

I refer to patients disabled by infantile paralysis. The child has passed through the stage of onset. Ergot, electricity, and massage have produced their legitimate effect, and we will say that the eighteen months, which are believed to be the limit of spontaneous recovery from the paralysis, are passed. The friends and the patient, with many grievous misgivings, have become reconciled or at least accustomed to disability and deformity which now seem to change for neither the better nor the worse. What can now be done? The question whether such a patient may not yet receive benefit from the advance of scientific knowledge or from the daily increasing facilities for the application of knowledge will surely spring up in the parental heart.

Now, it is curious to note that the deformity in these cases

is often found, upon analysis, to be a disability more than a deformity. Take a case, for example, in which the knee can not be completely extended. When the patient is sitting there is no deformity, but when he stands the apparent deformity is due to a disability—an inability to extend the knee. How easy it would have been to prevent contraction of the hamstrings by providing for their repeated elongation by complete extension of the knee, easy comparatively for one who has given himself to such details and is habitually mindful of their importance and free from the manifold cares which beset the average practitioner! And it should be borne in mind that cases sometimes occur in which shortening of the tendons begins, in a manner not well understood, at a very early stage, before simple desuetude can be fairly accused of being the author of the mischief. The prevention of muscular and tendinous shortening then should receive attention on the part of the early observer of the case. It is not an obscure and difficult point, but one which has perhaps escaped the consideration to which it is entitled.

To recur to the disabled knee—and this part of the anatomy is used simply as a convenient example to illustrate points in pathology and treatment applicable to all the joints—if the knee is kept extended at those times when walking is attempted, not only are the muscles and tendons kept in normal elongation, but the general welfare of the limb is assured. Neglected patients may be seen in the streets walking laboriously with extension of the knee produced by the hand pressed firmly at every step on the lower part of the thigh when the weight of the body is on that limb. It is doubtful whether this in any case prevents the final resort to a crutch, by the use of which the limb is made to dangle, being carried about as a worse than useless burden, twining limp around the crutch, subject to the painful affections which attack the lower extremities in cold weather in the absence of healthy circulation, and more and more impeding locomotion until, as has happened many times, the adult patient seeks relief and improved locomotor ability in amputation and an artificial limb. If the knee is stiffened mechanically, the pressure of the weight of the body in standing, and the repeated concussion of the limb as the foot strikes the ground in walking and running, will improve the tardy circulation; but beyond this, and better than this, will be the development of unused muscular fibers and special groups of muscles, by whose action important motions will be acquired which would have been impossible if the limb had remained in suspension.

Now, in order to keep the knee firmly extended under the weight of the body in standing and walking, and to give use and development, as far as may be, to the fragmentary muscular system of the limb, apparatus is required; but it will not be obtained without authoritative medical advice and prescription, and, as a rule, the family physician can not be expected to work out the tedious processes incident to treatment of this kind. It falls to the lot of the specialist, who can well bear the inconvenience attending final results which are more or less imperfect, after satisfying himself that he has done all that science permits to be done, and whose daily and hourly mastery of the necessary details has enabled him to reduce perplexing and complicating conditions to familiar routine. Treatment of this kind lies far outside ordinary practice, in which the physician renders such signal service. He makes his diagnosis, advises, prescribes, remains on guard against complications, foresees the crisis and prepares for it, leads the way cheerfully through convalescence; and medical science, so dear to us all, finds but another illustration of its power and beneficence. In one home a wasting fever has been finally resolved and the patient rises in perfect, or even improved, health from a bed where the

grim alternative has been decided in his favor. In another the children have been happily carried through the perils of infection and resume their places at the table. But in the special practice adapted to the cases under consideration there is no fear of a fatal result and no rejoicing, and the object sought is at the best a palliation. But who will say that important service has not been rendered? for it should be remembered that the conservative and plodding practitioner along this line has for an ally one of the most potent influences in Nature in the growth of the body. The popular reliance on this force, expressed in the common question, "Will the child not outgrow the ailment?" whatever it may be, is not always misplaced. Happy the physician who, imparting his confidence to the patient's friends and relying on the exact science of the physician, sees grace and power growing out of deformity and helplessness.

A good general rule in the treatment of deformity in a growing child is to keep the part as near as possible in the desired shape as much of the time, day and night, as is practicable, so that the increment shall be on the right side of the dividing line between the normal and abnormal. The familiar proverb says: "As the twig is bent, the tree's inclined." In the troubles following infantile paralysis the principle should be extended. We should not only persist in keeping the part as near the normal shape as we can, but we should also give as wide play as the crippled condition of the limb will allow to the functions of motion and weight-bearing. From the very earliest attempt to walk, or to make use of the muscles and joints which are imperiled by the cord lesion, extraneous assistance should be afforded. It should not be said offhand that the child is too young. The first and repeated question should be: Is the child not yet old enough, or is he not already giving sufficient evidence of a desire to make use of the questionable muscles and joints to make assistance desirable or necessary?

When efficient treatment is begun it is easily continued. Improved ability is at once appreciated by both parent and child. It is well that such is the fact, for improvement does not stop with infancy or childhood. The process is slow and prosaic, but the benefit can not be overestimated in the opinion of the one who is in the best position to judge of its value. A slight improvement in the gait or an ability to walk a little faster or a little farther without fatigue confers lasting happiness, and the patient and physician are thus encouraged to go on to new achievements until, with one step after another gained, the outcome is an adult well able to follow the ordinary pursuits of life, in place of a being who had looked forward to hopeless dependence.

The Congress of American Physicians and Surgeons.—

A meeting of the executive committee was recently held at the house of the chairman, Dr. Landon Carter Gray, at which there were present Dr. A. L. Loomis, president of the congress; Dr. H. P. Bowditch, representing the Physiological Association; Dr. D. B. St. John Roosa, of the Ophthalmological Association; Dr. Abraham Jacobi, of the Pediatric Association; Dr. P. A. Morrow, of the Dermatological Association; Dr. James B. Walker, of the Climatological Association; Dr. R. W. Taylor, of the Genito-urinary Association; Dr. W. T. Lusk, of the Gynecological Society; Dr. F. J. Shepherd, of the Association of American Anatomists; Dr. L. McLane Tiffany, of the Surgical Association; Dr. W. H. Welch, of the Association of American Physicians; and Dr. Landon Carter Gray, of the Neurological Association.

A local committee of arrangements in Washington was appointed as follows: Dr. S. S. Adams (chairman), represent-

ing the Pediatric Association; Dr. John S. Billings, the Surgical Association; Dr. H. G. Beyer, the Physiological Association; Dr. S. O. Ritchie, the Otological Association; Dr. S. C. Busey, the Gynecological Society; Dr. W. W. Johnson, the Climatological Association; Dr. J. Atkinson, the Dermatological Association; Dr. W. H. Welch, the Association of Physicians; Dr. I. O. Rosse, the Neurological Association; Dr. Samuel Theobald, the Ophthalmological Association; Dr. T. Morris Murray, the Laryngological Association; Dr. D. W. Prentiss, the Genito-urinary Association; and Dr. Frank Baker, the Anatomical Association.

It was arranged that the following subjects should be discussed by the congress at its next meeting in Washington, in the latter part of May, 1894:

The Climatological Association: Sewer Gas. The Genito-urinary Association: The Surgical Kidney in its Clinical Aspects. The Dermatological Association: Leprosy in the United States. The Laryngological Association: Intranasal Surgery. The Gynecological Society: The Conservative Treatment of the Female Pelvic Organs. The Neurological Association: The Effects of Infectious Processes on the Nervous System. One association is yet to select a subject for discussion.

Dr. W. H. Carmalt, of New Haven, resigned from the subcommittee deputed to take charge of the organization of the congress, and Dr. W. H. Welch, of Baltimore, was appointed in his place, so that the committee now consists of Dr. A. L. Loomis, president of the congress; Dr. Landon Carter Gray, chairman of the executive committee; Dr. Newton M. Shaffer, secretary of the executive committee, and Dr. W. H. Welch.

The Southern Surgical and Gynecological Association.

—The sixth annual meeting will be held in New Orleans on Tuesday, Wednesday, and Thursday, November 14th, 15th, and 16th, under the presidency of Dr. Bedford Brown, of Alexandria, Va. The programme includes the following:

A memorial address on Dr. Ephraim McDowell, by Dr. McMurry, of Louisville; The Diagnosis of Pelvic Inflammatory Diseases, by Dr. Howard A. Kelly, of Baltimore; The Treatment of Pyosalpinx, by Dr. Cornelius Kollock, of Cheraw, S. C.; The Incision in Abdominal Section—How to Close it—Post-operative Complications about it, by Dr. Joseph Price, of Philadelphia; The Etiology and Treatment of Post-operative Ventral Hernia, by Dr. Charles A. L. Reed, of Cincinnati; The Vaginal Method as compared with the Abdominal in Operations on the Uterus and its Appendages, by Dr. George J. Engelmann, of St. Louis; The Best Time to Operate in Appendicitis, by Dr. A. M. Cartledge, of Louisville; An Extraperitoneal Method of Operating in certain Cases of Appendicitis, by Dr. Bacon Saunders, of Fort Worth, Texas; Intracranial Neurectomy and Removal of the Gasserian Ganglion, with Report of Cases, by Dr. Louis McLane Tiffany, of Baltimore; Contusion of the Brain, by Dr. J. B. Murfree, of Murfreesboro, Tenn.; Trephining as a Cure for Traumatic Epilepsy, by Dr. John T. Chapman, of Bessemer, Ala.; Some Remarks on the Treatment of Epilepsy, by Dr. B. E. Hadra, of Galveston; A Contribution to the Study of the Prostate, by Dr. G. Frank Lydston, of Chicago; The Management of the Episcytic Fistula in Cases of Enlarged Prostate, by Dr. J. D. S. Davis, of Birmingham, Ala.; The Choice of Operations for Stone in the Urinary Bladder, by Dr. W. T. Briggs, of Nashville; Suprapubic Cystotomy, by Dr. B. W. Taylor, of Columbia, S. C.; Conditions Modifying the Prognosis in Gunshot Wounds of the Abdomen, by Dr. A. B. Miles, of New Orleans; The Treatment of Gunshot Wounds, with Report of Cases, by Dr. W. F. Westmoreland, of Atlanta, Ga.; How to deal with Gunshot Wounds safely without Delay, by Dr. W. L. Robinson, of Danville, Va.; Laparotomy in Gen-

eral Surgery—Report of Twenty-two Cases, by Dr. W. B. Rogers, of Memphis, Tenn.; Celiotomy, with Report of Cases, by Dr. W. H. Watben, of Louisville; Hypertrophy of the Omentum in Hernia, with Specimen, by Dr. G. A. Baxter, of Chattanooga; Wyeth's Bloodless Method in Amputation at the Hip, by Dr. F. W. Parham, of New Orleans; The President's Annual Address (The Southern Surgical and Gynecological Association, its Origin, Objects, and Aims); Cancer: its Etiology and Treatment, by Dr. W. L. Rodman, of Louisville; Operative Procedures for Carcinomatous Tumors of the Breast, by Dr. J. McFadden Gaston, of Atlanta; Wounds of the Bladder, their Recognition and Management, by Dr. Richard Douglas, of Nashville; Fibroid Tumors complicated with Pregnancy, by Dr. W. D. Haggard, of Nashville; The Diagnosis of some Abdominal Tumors supposed to be Ovarian, by Dr. James Goggans of Alexander City, Ala.; Rhinoplastic Operations, by Dr. W. S. Elkin, of Atlanta; Sarcomata of the Peripheral Nerves, with Report of a Case, by Dr. W. O. Roberts, of Louisville; Division of the Cervix Uteri, by Dr. H. P. C. Wilson, of Baltimore; Some Experiments with the Galvanic Current on the Endometrium, by Dr. H. Berlin, of Chattanooga; A Combination of Carbolic Acid and Camphor as an Antiseptic, by Dr. W. Perrin Nicolson, of Atlanta; A Case of Popliteal Aneurysm, by Dr. R. M. Cunningham, of Pratt City, Ala.; The Present Status of Ureteral Surgery, by Dr. A. Dixon, of Henderson, Ky.; Operative Procedures for Calculi in the Pelvis of the Kidney, by Dr. W. E. B. Davis, of Birmingham, Ala.; Two Unique Cases in Abdominal Surgery and Obstetrics, by Dr. B. P. Moore, of Macon, Ga.; Four Cases of Hysterectomy by Baer's Method, by Dr. J. Taber Johnson, of Washington, D. C.; Placenta Prævia, by Dr. George Ross, of Richmond; Some Interesting Cases from Surgical Practice, by Dr. F. W. Parham, of New Orleans; Report of Surgical Cases, by Dr. W. H. H. Cobb, of Goldsboro, N. C.; The Treatment of Stone in the Ductus Communis Choledochus, by Dr. W. E. B. Davis, of Birmingham, Ala.

Poisoning by a Belladonna Plaster.—In the November number of the *American Journal of the Medical Sciences* Dr. Ernest E. Maddox, of Edinburgh, relates the case of Miss P., aged about thirty years, a music teacher, who had been sent to him by her physician on account of obscure eye symptoms.

Her complaint was that on rising one morning she found a mist over her vision, and found that she could not read unless she held the book at a good distance. This was on a Monday, but during the week the symptoms were ameliorated by taking a dose of Gregory's mixture. On Sunday, however, they began to return, and by Monday were as bad as ever. On Tuesday she came to consult him. She looked flushed, and her eyes had an unnatural brightness; the pupils were not larger than they often are in those who, like herself, have slight myopia.

What aroused Dr. Maddox's suspicion was that she was always moving her mouth about in want of saliva, and on inquiry she said that her mouth and throat were painfully dry. Her near point of vision was found to be not nearer than a half-metre, so that, as she had 0.75 D. of myopia, her range of accommodation was only 1.25 D., instead of being, as it should be at her age, 7 D.

As the author felt sure that belladonna must be accountable for the symptoms, a searching inquiry was made as to the possibility of her having had it in some prescription or liniment, but all such possibility was denied.

At last she volunteered the confession that she wore a plaster over the lower part of the back, unknown to her physician, and that it was possible this might contain belladonna. Inquiry into her other bodily symptoms placed it so beyond doubt

that the suspicion would prove correct that she was simply ordered to remove the plaster and take a purge. This she did, with the result that the symptoms rapidly disappeared, though, even eighteen days afterward when she called again, the near point had not been quite recovered, and some of the nervous symptoms had not completely disappeared.

The symptoms which Dr. Maddox had carefully noted when she first came were so well marked, and many of them so characteristic, that he thought them worth recording as a study of the physiological action of belladonna. Besides dryness of the mouth and throat, her eyes felt dry and her skin also. Her pulse was 106, and the apex beat of the heart very strong and diffused. This, the author remarks, is well known to be due to paralysis of the cardio-inhibitory terminations of the vagus. On inquiring about her flushed face, she said she was naturally rather pale, adding, "I never have such a color as I have just now?" Her face felt hot. The eyes appeared smaller, and had a piercing look; to relieve their unpleasant dryness she had been obliged to bathe them with milk and water. She said her eyes seemed to have retreated more into their sockets; this Dr. Maddox thought quite possible, reflecting that belladonna often relieved exophthalmic goitre, and might do so by paralyzing the unstriated muscle behind the globe. He did not think it well, however, to attach too much importance to the observation of a patient on this point, for the mere dilatation of the pupil might deceive one, and make him think the eye looked smaller or more deeply sunk. The patient had well-marked accommodative micropsia, and complained spontaneously of it, saying, "A sixpence looks like a threepenny piece." Her color sensations had an abnormal permanency, so that if she looked at anything red or blue the next object she looked at appeared to be of the same color. This, says Dr. Maddox, is an interesting phenomenon because it is sometimes met with in individuals otherwise normal. He has met with one very well-marked case of such abnormal persistency of color sensation. It appears to be one form of hyperæsthesia of the retina, unless, indeed, its seat is in the nervous centers. Closely allied to this are the mental hallucinations so characteristic of belladonna. One night the patient called her sister's attention to a light shining in at the window, but her sister could see nothing. At other times she thought she saw dark objects. There was hyperæsthesia also of the other senses, so that any disagreeable odor appeared far worse than usual, and noises were unbearable. This keenness of sensation perhaps accounted for the fact that she could not sleep well, but kept waking up every hour. Her natural "nervousness" had been greatly increased by the belladonna; she had become "dull and desponding," life seeming miserable to her during the night; there was also loss of self-confidence, and a feeling as if it were not safe to venture out into the streets alone; she became taciturn, and yet irritable with her pupils; could not remember the day of the week, thinking, for instance, on Wednesday that the day before was Sunday. She would cross the street rather than meet with her friends, from a sense of timidity. Her locomotor equilibration seemed affected, for on rising in the morning she felt giddy and disconcerted on putting her feet on the floor—feet and limbs not seeming to move as they used to; "less agility in movement," and, on walking, felt as if her foot needed putting down a second time. These symptoms, says Dr. Maddox, are interesting as being distantly related to some of those in locomotor ataxia, being, however, functional instead of organic.

The bladder symptoms were almost pathognomonic of belladonna poisoning, and are of interest in connection with the undoubted service of this drug in the enuresis of children. She had frequent desire for micturition, having to rise three or four times at night, and passing much more than usual, very pale, and occupying a long time in its evacuation by a thin stream,

with complete intermissions as though micturition were over, then beginning again. This, the author thinks, probably points to the muscular fiber of the "detrusor urinae" being semi-paralyzed. The copious flow of pale urine, he adds, reminding one of hysteria and of those nervous headaches associated with the same hyperæsthesia of the senses, was no doubt nervous in its origin, unless, indeed, it was, as Dr. Haig would have us suppose, a question of the action of belladonna on the vital chemistry of uric acid.

The plaster was found to be made by one of those firms who pride themselves on the excellency of their belladonna plasters, and who exhibit the results of tests to show how much more belladonna they contain than the official plasters. The case recorded shows there is a limit to excellency of this kind, and that there is need for caution not to carry it too far.

A Surgeon's Nerve.—The following is from a recent article in *Longmans' Magazine*: "It is the common belief that a surgeon must possess what is spoken of as an extraordinary good nerve, and you may perhaps doubt if you possess this. At the same time you must bear in mind that in the case of a surgeon the coolness or calmness which is so admirable and necessary in an operation does not imply the possession of any remarkable personal quality, but it is the simplest result of a complete knowledge of what he is doing. It is rather the natural outcome of his accurate familiarity of anatomy, and his daily habit. A trooper would require a very fine nerve to go to a masthead, or a sailor to ride an unmanageable horse across a country, but a sailor's confidence aloft is due more to a matter of habit than to any particular amount of courage. In saying this, I do not wish to depreciate the calmness of the surgeon in the face of difficulties, but I may tell you quite plainly that if you haven't enough courage to be a surgeon I should be very much ashamed of you, and you would turn out to be a very poor creature, whatever occupation you might follow. Still this fact remains, and you may perhaps be interested to hear that I, who have known many good surgeons, have never seen one who has not possessed a very fine courage. In short, a very good surgeon is, in my humble opinion, a very fine fellow, and when I see (as I do see) the extraordinary achievements of modern surgery, I am very proud of belonging to a profession which has made life so much more endurable and prolonged to the human race. So, possibly, the great fascination which surgery no doubt possesses to many, appeals more strongly to men of courage and determination than to those persons of more weakly constituted minds, or to those who are less vertebrate altogether."

The late Dr. Charles Slover Allen.—The Society of the Alumni of Charity Hospital, at the last stated meeting, adopted the following preamble and resolutions:

Whereas, In the death of Dr. Allen we lose a valued and esteemed associate and friend, a faithful student and accomplished member of our profession; and

Whereas, We acknowledge his friendly interest and the stimulus of his high ideals in our profession and as a gentleman. It is therefore,

Resolved, That we express our sincere and heartfelt sorrow at his death. And further it is

Resolved, That we tender to his bereaved family our profound sympathy. And further it is

Resolved, That a copy of these resolutions be sent to the bereaved family and to the medical journals and spread upon the minutes of the society.

[Signed.] A. T. MUZZY, }
RALPH WALDO, } Committee.
DAVID P. PRABE, }

Original Communications.

AFFECTIONS OF
THE TESTICLES AND THEIR APPENDAGES
IN HEREDITARY SYPHILIS.*

By R. W. TAYLOR, M. D.,

CLINICAL PROFESSOR OF VENEREAL DISEASES
AT THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

THOUGH it was formerly stated by Zeissl, Hill, and others that the testicles are not affected in hereditary syphilis, there is to-day so much evidence from many careful observers that syphilis does attack these organs in hereditarily infected children that it is almost unnecessary to mention this old-time contention. My own experience is sufficient to warrant me in offering a succinct account of these affections, but I have availed myself of a rich literature in order to more thoroughly elaborate this subject.

The following selected personal cases are worthy of study:

CASE I.—Child, aged three months, fairly well nourished; father syphilitic eighteen months, mother seemingly in perfect health. Shortly after birth snuffles and a papular eruption on the buttocks, legs, and forearms were observed, as well as condylomata about the anus. The child received little if any specific treatment. When ten weeks old the mother noticed that the left testicle was swollen. On examination, the scrotum was red and somewhat indamed. The testis was as large as a nutmeg, hard, firm, perfectly smooth, and painless on moderate pressure. There was slight hydrocele recognizable by palpation, but not by the light test. No involvement of the epididymis or cord. Under the influence of mixed treatment in goodly doses, aided by local daily frictions of white precipitate ointment, the testicle subsided to its normal size in two months.

CASE II.—Child, aged ten months, thin and cachectic, born of parents the victims of recent and irregularly treated syphilis (infection dated about eighteen months before the child's birth), presented swellings at the diaphyso-epiphyseal junctions of the radius and ulna of both arms and of the testes. The right testis was as large as an olive and the left was fully as large as an unbroken filbert. These organs were hard, firm, perfectly smooth, and could be freely handled without discomfort to the child. The bone lesions were tender and painful. There was distinct enlargement of the globus major of the right testicle and a diffuse enlargement of the whole epididymis of the left side. The vas and cord were seemingly normal. There was some hyperæmia of the scrotum, but it was neither inflamed nor painful. Though carefully treated and well nourished, the child improved very slowly under general and local treatment, as in Case I. At the end of nine months the right testicle was seemingly of normal size and healthy in structure. The left testicle from time to time swelled, seeming to resist the influence of the treatment. The affection pursued this course for fully six months; then resolution began which resulted in complete atrophy of the organ. It then felt like a little mass of fat at the end of the vas.

CASE III was that of a child aged thirteen months, thin and wan-looking, like a little old man, born of a mother having a

distinct history of syphilis and of two previous early miscarriages. This child had been treated after birth for fully four months with small doses of gray powder with the effect of dissipating its cutaneous and mucous lesions. When ten months old its mother noticed that the left testis was swollen to the size of a plum. The gray powder was then resumed without benefit. The swelling continued to increase and attained the size of a large walnut. Examination showed that the organ was hard and firm and that its surface was studded with a large number of small nodules with several larger ones of the size of a split pea. A decided enlargement of the whole epididymis and of about half an inch of the vas deferens was felt. Frictions of mild mercurial ointment were used and the mixed treatment was given internally in full doses. The resolution of the morbid process was very slow. Little diminution in the size of the swelling was observed for three months; then the organ gradually grew smaller, yet fully a year elapsed before, upon careful examination and comparison with its fellow, it could be pronounced normal. During this time slight recurrences were noted. Four years afterward, the child was found to be healthy, and no abnormality could be detected in the previously affected testis.

CASE IV.—A child aged two years and a half, the off-spring of parents syphilitic fully two years before its birth. This child had many and varied lesions of the skin, mucous membranes, bones, and joints. It was energetically treated for about eight months and after that mercurials were given irregularly. When two years old the right testis was found to be as large as a walnut. It caused the child no suffering and the organ could be handled without any flinching. When two months old the swelling became larger and adherent to the scrotum. Within a month an abscess formed and from a circular hole in the scrotum half an inch in diameter a grayish red, fungating mass protruded fully half an inch. At this time the child seemed to suffer very little and only winced slightly when the organ was carefully explored. Active internal medication was administered, and the fungating mass was cauterized and dressed with mercurial ointment. In about four months a cure was effected. The testis was then about the size of a pea, but adherent to the scrotal wall. In this case the left testis seemed slightly swollen and affected with hydrocele, both of which conditions subsided under the influence of the treatment. In neither testis was the epididymis involved.

CASE V.—A child, sixteen months old, fairly well nourished and developed, the offspring of a syphilitic father (infection two years old) and a seemingly healthy mother, had in its early months roseola in plaques about the buttocks, a large generalized papular syphilide, and buccal mucous patches. It was treated with inunctions and gray powder for six months. When about a year old its mother noticed that its left testis was enlarged, but, as it caused no pain or uneasiness, she paid no attention to it. Four months later (the sixteenth month of life) the child began to suffer at night and it was found that its left humerus just at and above the elbow joint and the right tibia and fibula above the ankle joint were swollen and painful. At this time examination showed that the left testis was indolently swollen to the size of a Lima bean and that the epididymis was enlarged in a crescent form to the size of a clay-pipe stem, and that the swelling extended for half an inch up the vas deferens. Active general and local mercurial treatment caused a resolution of these lesions in three months. The swelling in the testis was the first to disappear, while that of the epididymis and vas subsided slowly. When the child was two years old no appreciable change could be noted in the testis and epididymis.

* Read before the American Association of Genito-urinary Surgeons at its seventh annual meeting.

CASE VI.—A boy, fifteen years old, had a smooth, hard, painless swelling of both testes which had begun six months previous. They were of the size of a walnut. The epididymes could not be made out by examination, for they seemed to be spread out over the testes as mace is placed in relation to the nutmeg. The vasa deferentia were normal. A treatment occupying fully six months with iodide of potassium internally and mercurial ointment externally was required to produce resolution in these swellings.

The boy was small for his age, but well developed. His parents were in the active stage of syphilis at the date of his birth. He had when an infant keratitis of the right eye, which left a small patch of opacity of the cornea, a middle-ear disease, which caused total deafness, and later on developed typical notched teeth.

These cases present all the salient features and most of the minor and accessory ones of these affections, and are, I think, a satisfactory basis for deduction.

The most common affection is orchitis, and while inflammation of the epididymis is sometimes observed, it is almost always as a complication of orchitis. Involvement of the vas deferens is quite uncommon, but occurs as a complication of the orchitis epididymitis. Neither of these affections is really of frequent occurrence, as shown by the fact that in literature something like fifty cases are more or less fully described or alluded to. Testicular affections are among the rarer manifestations of hereditary syphilis. Pathologically, the testicular lesion has been recognized by Hutinel* as early as the ninth and twenty-third days of birth. Clinically, however, it is seen generally in children from three to six and twelve months old, and in diminishing frequency in the second or third years. Somewhat exceptionally it is seen in later years, as in my sixth case at fifteen, and in a case mentioned by Fournier† at twenty-four. My own experience goes to show that these lesions occur in children the offspring of one or both parents in a tolerably active condition of syphilis, and in many of the reported cases the conditions were similar.

Clinical History.—The orchitis begins slowly and insidiously. No pain is felt by the child, and attention is not called to the diseased organ until its dimensions have become so marked as to attract the notice of the mother or nurse. As usually seen in practice, the testis is of the size of a pigeon's egg, of a small marble, of a shelled filbert, of an olive, or even of a walnut, but it is usually of an ovoid shape. As a rule, the organ is not large, and in the majority of cases reported it was of the size of a shelled or of an unbroken filbert. In other words, there is not a tendency to the development of conspicuously large tumors. To the touch the swelled testis is hard and firm (less hard and ligneous than in the adult), indolent, painless, and decidedly heavy. It can usually be handled with impunity. In some cases there is concomitant hyperæmia of the scrotum. In rather rare instances the surface of the tunica albuginea is uneven and irregular and gives the sensation as if small shot or split peas were seated in its superficies.

The epididymis may be slightly or considerably enlarged, in part or in whole. The swelling is smooth and firm and pressure upon it sometimes causes pain. The enlargement of the vas is similar in all respects to that of the epididymis. The fact of the coincident involvement of the epididymis has been clearly brought out microscopically and clinically in an admirable paper by George Carpenter.*

As a general rule, the enlargement of the epididymis or vas is an accompaniment of a testicular lesion. Comby,† however, reports the case of a child the subject of hereditary syphilis, six weeks old, in whom the epididymis was especially involved. This would seem to show that the epididymis alone may be attacked.

These affections, uninfluenced by treatment, usually run an uneventful course and may end in resolution or in atrophy, particularly of the gland substance. This was well shown in my second case, in which the testis was reduced to a small mass of fibrous tissue. Lewin‡ reports, as an instance of atrophy of the testes from hereditary syphilis, the case of a man, eighteen years old, whose testicles were the size of a child's, who was puerile in demeanor and looked like a boy of fourteen. Réclus* speaks of a case of a patient (age not stated) considered by Parrot and Fournier to be the victim of hereditary syphilis, in whom a gland of the size of a small nut and of great firmness was present. Facts therefore warrant the statement that hereditary syphilis, like traumatism, mumps, and varicocele, may lead to atrophy of the testes. As a general rule, it may be stated that atrophy is the chief form of degeneration in this form of orchitis. In somewhat rare instances fungus of the testes is observed, and it follows the same chronic, rebellious course that it does in the adult. Abscess and necrosis of the testes also occur, in which case we observe a sinus in the scrotum (which may be much inflamed) which leads down to a pus cavity of varying size in the gland itself. I once saw a case of this kind in consultation which was cured by careful treatment. If treated early and vigorously, resolution may be brought about and a testis, more or less damaged, may be left. It is always well to try energetic local and general treatment before thinking of ablation.

Hydrocele is a more frequent complication than has heretofore been conceded. It may be slight or well marked. Its existence in the infant should always excite interest and its origin in syphilis or tuberculosis should be established.

Carpenter reports three cases of hereditary syphilis in which there was hydrocele of the cord, but no appreciable testicular lesion. This affection of the cord might be a coincidence, but Carpenter says "there is just a probability that hydrocele of the cord may in some instances owe its origin to congenital syphilis."

The concomitants of these testicular affections vary according to the age of the child and the intensity of the in-

* Étude sur les lésions syphilitiques du testicule chez les jeunes enfants. *Rev. mens. de méd. et de chir.*, Paris, February, 1878, p. 107 et seq.

† *Syphilis héréditaire tardive*, Paris, 1886, p. 435.

* Affections of the Testicle in Hereditary Syphilis. *Practitioner*, September, 1892, p. 201 et seq.

† *Annales de derm. et de syphil.*, vol. x, 1889, p. 706.

‡ Ueber Syphilis hered. tarda, etc. *Berl. klin. Wochens.*, Nos. 2 and 3, 1876.

* *De la syphilis du testicule*, Paris, 1882, p. 149 et seq.

fection. In very early months roseola, papular syphilides, mucous patches, eye, ear, and bone lesions may be also present. In later months there will be fewer and perhaps no concomitants. But there may be bone or joint lesions, and perhaps cutaneous or mucous lesions in sparse and limited development.

Diagnosis.—As a rule, an intelligent study of a case of testicular lesion in a young child will lead to a correct diagnosis. It is necessary to obtain the history of both father and mother, if possible, and then that of the child. In the early months of hereditary syphilis it may quite generally be possible to gain a knowledge or observe a vestige or sequela of some characteristic lesion, or to see some lesion itself. In this event the diagnosis will be easy. When, however, for any cause, we can obtain no information concerning the father or mother, and the child is free from all syphilitic lesions or their traces, difficulty is experienced. Then we must consider the character of the tumor and see whether it conforms to the description already given. Deschamps,* as well as Hutinel, lays stress on the fact that in syphilis the testes are usually both involved, while in tuberculosis commonly but one is affected. This, however, can not be accepted as a general rule, since we not uncommonly find that the syphilitic affection is unilateral. Then, again, too much stress can not be laid upon the condition of the epididymis and vas. In syphilis these appendages may be moderately involved in whole or in part; in tuberculosis it is common to find them much enlarged and sometimes nodulated. When, therefore, we see a case in which there is a unilateral swelling, very marked enlargement of the epididymis, and perhaps of the vas, particularly if the enlargement is rugose or nodulated, and when the testicular lesion is less developed, we may suspect syphilis. In all such cases it is absolutely necessary to examine the prostate and seminal vesicles by rectal touch, and if they also are found to be swollen, the presumption will be warranted that the case is one of tuberculosis. On the other hand, freedom of these structures from disease points in a measure to the existence of syphilis.

No absolute criterion can be drawn from the conditions attending the invasion of the disease. In syphilis the enlargement, as a rule, takes place slowly, but sometimes rather rapidly. In tuberculosis the invasion may be slow and insidious also. But it is well to remember, as Jullien† has shown in his admirable article, that the most

common mode of invasion is the brusque and rapid, attended with marked inflammatory symptoms. This is rarely, if ever, seen in syphilis.

While, therefore, in most cases a clear diagnosis may be made, instances will occur in which it is impossible to say whether the lesion is syphilitic or tuberculous. This point has been prominently brought out by Hutinel and Deschamps, and also by Carpenter and Colecott Fox. These observers report cases in which the syphilitic history is clear and the testicular symptoms point to that origin, yet intelligent and active antisymphilitic treatment fails to produce resolution. In these cases we observe what is so frequently seen in adults—namely, a tubercular infection in a syphilitic subject. This is common in many organs and tissues, notably the lungs, bones, joints, meninges, and testes. It is always well, therefore, to remember this frequently occurring mixed infection. Carpenter very properly states that a thickened, indurated, and enlarged vas is strongly indicative of tuberculosis. The same may be said of cases in which there are multiple ulcerations and adhesions of the scrotum to the testicles.

It is well to remember that the testes of young children are sometimes the seat of carcinoma, encephaloid cancer, and sarcoma. These malignant growths are usually seen toward the end of the first year of life and later. They are, as a rule, of rapid development, of large size (that of a hen's egg, a mandarin, and larger), may be accompanied by inguinal adenopathy and usually more or less pain, and always lead to death sooner or later.

Pathological Anatomy.—The histology of the diseased testicle in hereditary syphilis has been studied by Parrot, Hutinel, Réclus, and Carpenter. The lesion is an interstitial and diffuse collection of round embryonic cells resembling white blood-cells. In the interstitial form, in which the gland may not be perceptibly enlarged, the cell growth results in small tumors of various sizes, irregularly placed around the arterioles which traverse the trabeculae. In other words, it is the same coat-sleeve infiltration which we see in the adult. In the diffuse form, in which the organ is much enlarged, a smaller cell growth is found permeating the meshes of its connective tissue generally. The process begins at the mediastinum testis, follows the vessels of the trabeculae between the seminiferous tubules, and finally results in hypertrophy and sclerosis of the organ, with partial or entire obliteration of the tubules, whose lining epithelium undergoes granulo-fatty degeneration. Fatty degeneration and final absorption of the new growth take place, resulting in atrophy and, in rare cases, in complete destruction of the organ. Probably the cases which are attributed to arrest of development, in which the testis is small or entirely absent, are those in which the organ has been attacked in early life by hereditary syphilis. It is probable that the ovaries may be attacked in a similar manner to the testicles.

Gummata of the testicle in the hereditarily syphilitic infant are very rare. Hutchinson* showed at the meeting of the London Pathological Society a specimen of gumma

* Tuberculose du testicule chez les enfants. *Arch. gén. de méd.*, vol. i, 1891, p. 257 et seq.

† De la tuberculose testiculaire chez les enfants. *Arch. gén. de méd.*, April, 1890. It may be interesting to note that in twenty of Jullien's cases "sixteen occurred in children of less than five years of age, six of them were less than one year old, and six ranged from one to two years. Of the former, one was one month old and two were two months old when the disease was detected. Giraldès (*Leçons cliniques sur les maladies chirurgicales des enfants*, 1869, p. 524) has recorded the cases of infants of a few days only, and Dreshfield (*British Medical Journal*, 1884, p. 860) has observed a case of congenital tuberculosis of the testicle. In four observations by M. Lannois (*Revue mensuelle des maladies de l'enfance*, 1883, p. 528) the testicular tuberculosis appeared at five months, six months, seven months, and thirteen months of age." (Quoted from Carpenter, *op. cit.*).

* *Transactions*, London, vol. xxi, p. 192.

of the testis from a boy the subject of hereditary syphilis. The testis was much enlarged and thoroughly infiltrated with a growth of opaque yellow color. I have failed to find mention of other similar cases.

Henoch* examined, after death, the testes of an hereditarily syphilitic boy, and found extensive connective-tissue hypertrophy of the corpus Highmori. Carpenter also found interstitial new growth in the epididymis.

Treatment.—My experience in fifteen cases convinced me that the mixed treatment in goodly and increasing doses was most efficient in these testicular lesions, as it is in the bone and joint lesions of hereditary syphilis. I was often much surprised at the large doses which infants could take with impunity and marked benefit. This treatment, with intermissions, should be kept up at least two or three years. I am not in accord with Carpenter and other English authors who pin their faith on gray powder. This drug may be useful in the exanthematous stage or state of hereditary syphilis, but it has in my hands proved very feeble and often inert in the lesions of the fibrous tissues and bones.

Locally, much good can be derived from mercurial frictions to the scrotum, using, with great care as to the avoidance of dermatitis, white precipitate, or blue ointment. When the organ is much affected with degenerative processes ablation may be necessary.

40 WEST TWENTY-FIRST STREET.

"THE SPHYGMOGRAPH AS AN INSTRUMENT OF PRECISION."

(WITH APOLOGIES TO DR. LEONHARDT.)

By WILLIAM A. HAMMOND, M. D.,
SURGEON GENERAL, U. S. ARMY (RETIRED LIST).

If Dr. Leonhardt will kindly pardon my appropriation of the title of his contribution to the *New York Medical Journal*, August 26, 1893, I will promise never again to offend in this direction. I do not think I have ever before availed myself of his syntactical acumen, and I would not do so now except for the fact that the title of his paper, after having served his purpose in one direction, is equally appropriate to express my views in another directly opposite direction. It is one of those beautiful examples, in which the English language abounds, of the use of the same words to denote diametrically contrary ideas.

But, on reading Dr. Leonhardt's article, I was impressed with the conviction that the title he employed had very little to do with the object he had in view, which was not so much to descant on the certainty or uncertainty of the results obtained by the sphygmograph as to show that I had in my communication to the *New York Medical Journal*, July 1, 1893, entitled *A Further Contribution to the Subject of Animal Extracts*, committed errors which to a great

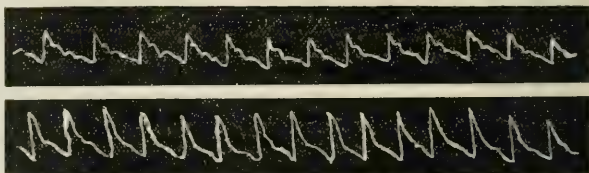
extent lessened the value of the results obtained. Before proceeding to discuss the question of the value of the sphygmograph, it will be proper for me to clear myself from these aspersions on my accuracy of statement so far as may be in my power.

I said that I had used Marey's sphygmograph for over thirty years. Absolute exactness would have required me to say about "twenty-eight years." I bought one in Paris in the latter part of the autumn of 1865, and brought it with me to this country in the spring of 1866.

I said that I had used Pond's sphygmograph for more than twenty years. I have two of Pond's instruments, one being among the first he ever made, the other, with improvements, purchased a year or two afterward. I was under the impression, and still am (notwithstanding Dr. Leonhardt says I am three or four years out of the way), that I have owned the first named sphygmograph for over twenty years. Perhaps I am mistaken; I am open to conviction on this point, if Dr. Leonhardt or any one else thinks it worth while to discuss the question further. But what does it matter whether I have owned Marey's instrument for twenty-eight years instead of thirty, or Pond's for seventeen years instead of twenty. Dr. Leonhardt quibbles; he should bear in mind that such points are non-essentials, and that there is a legal maxim applicable to him in this connection which I commend to his serious consideration should he get into another controversy: *De minimis non curat lex*.

But he himself, like most people who set out to correct others, is not guiltless of the very fault he attributes to me. He says: While I do not profess to know all that is to be known on the subject of sphygmography, I am in possession of a few facts that every schoolboy ought to know." This, taken seriously, would be a very ridiculous expression, for, of course, no schoolboy ought to or does know anything about the sphygmograph, unless it may be some phenomenal youth who is so fortunate as to have such a devotee of the instrument as Dr. Leonhardt for his teacher.

In the next place, Dr. Leonhardt finds fault with my statement that "a less vertical upstroke shows increased force." This is true of Marey's instrument, with which the tracings he criticises were made. It probably is not true of Dudgeon's sphygmograph, to which apparatus Dr. Leonhardt pins his faith, but with which, as I have said in my pre-



vious paper, I have no acquaintance. Now, without bringing my own tracings into the question, I submit the above, which I take from Brondel, whose authority Dr. Leonhardt will probably not dispute. The upper one is a tracing made before the administration of pilocarpine. The other

* Ueber Syphilis der Hoden bei kleineren Kindern. *Deutsch. Zeitsch. f. pract. Med.*, 1877, No. 2.

represents a tracing made after 0.02 grm. of the drug had been given hypodermically.

Dr. Leonhardt will not, I think, contend that pilocarpine strengthens the heart, yet we see that the upstroke of the tracing taken after that medicine had been injected is so excessively vertical, if I may use the expression, that it is something in this respect like the attitude of a pompous man in his rigidly erect position. As the inventor of a new cannon said when asked about the recoil: "Gentlemen, there is no recoil backward to this gun; if anything, it recoils a little forward."

In my statement that "the distance between any two upstrokes is shorter when the recording surface moves rapidly, and longer when it moves slowly," I was the victim of heterophemy, as doubtless Dr. Leonhardt himself is at times. A cursory examination of the tracings which I gave as illustrative of the action of cardine would have shown him that I meant the very reverse of what I said. But it is in just such matters as this that he is at his best, and he is entirely welcome to all the glory to be derived from such a style of criticism.

Now, in regard to the value of the sphygmograph, I have never put much confidence in it. The conditions of its employment are so variable that it is difficult, except in very pronounced cases of disease or functional derangement, to get indications approaching accuracy and that do not vary with each application of the instrument. As to comparing the results obtained by one kind of sphygmograph with those obtained by another, nothing is more absurd. Dudgeon's instrument—the one Dr. Leonhardt uses—is asserted by Broadbent, quoted by Landois,* to be "untrustworthy." I sincerely hope it is, for if the tracing of his own pulse, given by Dr. Leonhardt (and which he presumably regards as normal), is to be relied upon, he is either suffering from "tobacco heart" or some other form of cardiac neurosis, or he has mitral regurgitation, for a more irregular and altogether disorderly sphygmogram has rarely been exhibited to the world. An inspection of it shows that the left ventricular impulse is very unequal, and is sometimes so weak as not to affect the instrument; that the systolic wave is similarly affected; that the predicrotic wave of any one pulsation is never even approximately similar to that of any other pulsation. Either the instrument is worthless, or there is functional or organic disease. There are two other possible contingencies: One, that he was careless in the manipulation of the instrument; the other, that he is the victim of that accident at which he sneers—namely, damage in the transportation of his sphygmogram from Lincoln to New York.

Should occasion offer, I should be happy to accept Dr. Leonhardt's challenge for a sphygmographic tournament; and in the meantime make bold to advise him to change his sphygmograph for a more "trustworthy" instrument, or to use less tobacco, or to consult a specialist on diseases of the heart, or to be more careful in the manipulation of his instrument, or when he next has occasion to send a

sphygmogram to New York to send a tracing of it made on prepared paper.

As to my well meaning attempt to improve his manners, Dr. Leonhardt prefers that I should mind my own business. Therefore, with that readiness which I trust I shall always exhibit never to contend with absolute impossibilities, but to accept the inevitable with resignation, I leave that matter to the influence of the development which advancing years will doubtless effect.

SOME CAUSES AND CHARACTERISTICS OF NEURASTHENIA.*

By A. D. ROCKWELL, M.D.

WHILE very little has been added during the past few years to our knowledge of the etiology, pathology, or treatment of neurasthenia, yet it will, I think, be admitted by all whose experience entitles their opinion to weight that the disease is in most instances entirely curable, and in some cases self-curable. The enunciation and widespread diffusion of this idea I consider most important, for in neurasthenia we are dealing with a condition of mind and body that occasions more misery and paralysis of utility than many an organic and incurable disease, and because added to those wearisome and subjective symptoms of distress which only the neurasthenic himself appreciates and the physician who listens to his tale of woe, is a condition of utter hopelessness, and a resistive tendency that sometimes very materially interferes with the success of therapeutic measures. The true neurasthenic has a double burden to bear, in that, being sick and in despair, friends, relatives, and associates, in their ignorance, take little care to conceal their opinion that all these symptoms are mere figments of the imagination.

Fully aware of this incredulity and of the inability of friends to appreciate his condition, many a neurasthenic aggravates his condition by concealment and brooding, and the end is sometimes suicide. It is admittedly true that, in general, pathology and the etiology of disease are far in advance of therapeutics, but in neurasthenia we have a notable example of the reverse of this.

Our knowledge of its pathology is still conjectural and unsatisfactory, and in the study of its genesis and gradual development the most painstaking observation and analysis are still required. It is a source of satisfaction, at all events, that whatever tentative knowledge we possess in this direction does but confirm the correctness of the generally accepted methods of treatment.

In a note on Nervous Diseases in Low Races and Stages of Culture (*Science*, Dec. 16, 1892) Dr. D. G. Brinton holds that those are in error who claim that "diseases of the nervous system have greatly increased with the development of civilization." My own very positive conviction, based upon a somewhat extended experience in the treatment of neurasthenic cases, is quite the reverse of

* *A Text-book of Human Physiology.* Third American Edition. Philadelphia, 1889, p. 142.

* Read before the Section in Neurology of the New York Academy of Medicine, October 13, 1893.

this. In hospitals, in dispensaries, and among the very poor everywhere a typical case of neurasthenia is difficult to find, but among the well-to-do and the intellectual, and especially among those in the professions and in the higher walks of business life, who are in deadly earnest in the race for place and power, this peculiar impoverishment of nerve force that we call neurasthenia appears with alarming frequency. Dr. Brinton says also that civilization, so far from increasing this class of maladies, is one of the most efficient agents in reducing them in number and severity, especially when freed from religious excitement and "competitive anxieties." It is, however, these very "competitive anxieties," so intensified in this country, this worry of business and professional life, that civilization fosters and deepens. American nervousness is indeed a distinctive phrase, and the frequency with which allusion is made to it gives it, in the minds of many, a meaning apart from that ordinarily ascribed to the term. We hear very little of English, French, or German nervousness, and yet, in a large record of cases, the writer has thus far failed to detect any widely divergent lines of differentiation between the functional nervous manifestations of the different nationalities. But while the general characteristics of the nervous temperament are very much the same, whether observed in the English or German, French or American, and while the same general causes underlie each class of cases, it can not be denied that in America there are climatic conditions and business and social environments to the influence of which the nervous system is peculiarly susceptible, especially if complicated with evil habits, excesses, tobacco, alcohol, worry, or special excitements.

An American in England is frequently surprised to find that he is able to indulge in malt and spirituous liquors to an extent that he would never attempt in his own country, while the Englishman, if for any time a resident here, finds to his cost that excesses in eating and drinking impose a heavier tax upon the conservative processes of the body than in the humid atmosphere of his insular home.

A gentleman of a convivial turn who makes frequent trips to England tells me that on his pedestrian excursions through the country he is accustomed to drink malt liquors with impunity, while in this country, under the same conditions of exercise, he can take but a comparatively small amount without unpleasant results. The Englishman is less nervous than his American cousin, not because he is less abstemious in his eating and drinking, but because excesses in certain directions are less hurtful in his climate than in ours.

No more exact delineator of certain English types and habits has ever written than Anthony Trollope. His *Man about Town*, with his enormous capacity for brandy and soda, is a unique creature in his way, and quite puts to shame the comparatively mild potations of his American counterpart. With the will, perhaps, to indulge as freely as the Englishman, the American succumbs to alcoholic excesses that are relatively far less, and with symptoms that are oftener nervous than bilious or gouty. Another potent factor in the production of the so-called American nervousness, which is really nervelessness, is the hurry and worry

of business and professional life on this side of the water. My observing friend Marshall P. Wilder says that "the English have acquired the virtue of deliberation and are never in a hurry or fret; all business is conducted in a quiet, leisurely way that seems to an American like child's play, but is in dead earnest all the same. Your English banker will be found in some little building not at all like an American bank, and with very few clerks in sight. Nobody rushes breathlessly in or out, yet the amount of business transacted daily in that dingy little building is enormous."

In the older countries men plod along in the footsteps of their fathers, generation after generation, with little possibility and therefore little thought of entering a higher social grade. Here, on the contrary, no one is content to rest with the possibility ever before him of stepping higher, and the race of life is all haste and unrest. It is thus readily seen that the primary cause of the increase of neurasthenia in this country is civilization itself, with all that the term implies, with its railway, telegraph, telephone, and periodical press intensifying in ten thousand ways cerebral activity and worry. As before intimated, another important causative factor is found in the relative dryness of our atmosphere as well as in our extremes of heat and cold. Evidences of the dryness of this climate are observed in the drier and stiffer hair grown by Americans and in their leanness compared to the English and German. In the Northwest this peculiarity of climate is more positive even than in the East, as evidenced by the readiness with which meats when hung in the air are dried and preserved. It may be only a coincidence, but the writer has remarked the greater proportional number of neurasthenics coming from that portion of the country.

Then, again, no one can estimate the importance of the natural electricity of the body nor altogether analyze the part it plays in the human economy. What is an excess and what a deficiency has never been demonstrated, but we do know that dry air prevents the natural electricity of the body from being conducted away, and it is rational to believe that a constant excess of electricity in the body may in some cases so overstimulate as to excite a degree of nervousness that amounts to disease.

Fortunately, however, man has it in his power to rise superior to climate; can adapt his methods of living to the vicissitudes of climate.

The cause and cure of disease in general are very much in what we eat and drink and the way we live. If the American would cease squandering his vital forces by excesses, exercise a little common sense in what he eats and drinks, and practice the gospel of rest advocated by Herbert Spencer, he might bid defiance in great measure to climate and regain the old-fashioned constitution of his fathers.

Benedict understood this when he said that "if the Americans would learn from the Germans how to amuse themselves instead of yawning on holidays, the danger of neurasthenia would be diminished. Whoever has not learned how to play and jest easily succumbs to mental work."

All physiology and all pathology begin and end in the

cell, and it is quite as important to recognize the facts of cellular nutrition in dealing with the functional diseases of the nervous system as where its nutrition is perverted and poisoned by microbic agencies. The vitality of the cell is the important and underlying factor in health and disease, and experimental physiology, in relation to changes in nerve cells under stimulation, is already throwing some light upon the etiology and pathology of neurasthenia.

Electrical excitation of a nerve in association with a spinal ganglion is followed in a few hours not only by some diminution in the size of the nerve cells, but by a very considerable shrinkage of the nuclei of the cell capsule, and this change in the cell is found to be generally in proportion to the severity and duration of their stimulation.

It is a specially significant fact also that the cell recovers its normal activity and appearance only after long hours of rest, five hours of stimulation producing an exhaustion and change that requires twenty-four hours of rest to restore.

Associated with these actual changes in the nerve cells are chemical reactions that add a toxic element to the actual muscular and nervous expenditure of energy. What takes place in nerve cells under artificial stimulation takes place also, in all probability, in greater or less degree in the ordinary activities of daily life, and the fatigue of mind and body which follows concentrated or prolonged effort is in the same way dissipated by rest and sleep. This is what is to be normally fatigued.

Muscular activity through attendant chemical changes always yields certain noxious products that are both obstructive and destructive, and it is not alone rest and sleep that restore the normal organic tone of mind and body, but also the flow of blood which, while it deposits new material, carries away the waste products which clog and poison the system. A person may be said to be normally fatigued just so long as complete recuperation follows rest and sleep. Even where, through electrical stimulation or by effort of will, the repeated muscular contractions result in such absolute exhaustion that the muscle refuses to respond, or responds only imperfectly, to artificial stimuli or voluntary effort, it is still only normal fatigue if through disuse the muscular fibers regain in a few hours or days their usual tone. In involuntary muscular contractions there is no mental effort, and therefore no fatigue of the central nervous system, but in voluntary muscular effort there is a certain expenditure of energy that fatigues brain as well as muscle. On the other hand, severe mental labor results in a weakening of the inactive muscles—a condition supposed to be due to toxic influences following chemical changes in the brain. It is believed, and this belief is in accordance with accepted physiological principles, that both brain and muscle when exercised undergo a regressive metabolism of tissue of an oxidative character. The poisonous material thus set free acts upon the muscles through the circulation and weakens them.

If this voluntary or involuntary stimulation of muscular activity is frequently repeated to the verge of exhaustion, and until the recuperative power fails to bring back the muscular tone to its normal level, we have passed the bounds

of normal fatigue. The muscles, or the brain, if the strain has been along the line of mental effort, are now suffering from pathological fatigue, a condition in which the nutrition of the nerve cells is primarily at fault—an unbalanced condition of waste and repair; in other words, neurasthenia. The inanition and auto-intoxication of neurasthenia or pathological fatigue are direct results of those visible changes in nerve cells and the toxic products of exercise which accompany normal fatigue. Overstrain, from whatever cause, and the derangement of nutrition, initiated and determined by repeated toxic influences, must be accepted as the essential causes and pathological state of the neurasthenic condition.

113 WEST THIRTY-FOURTH STREET.

A CASE OF PUERPERAL ECLAMPSIA

AT EIGHT MONTHS AND A HALF OF PREGNANCY,
WITH REMARKS UPON THE USE OF
BUFFALO LITHIA WATER IN THE AFTER-TREATMENT.

By R. R. BALL, M. D.,

CAPTAIN AND ASSISTANT SURGEON, U. S. ARMY,
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Mrs. M., a multipara, came into my hands during the latter part of April, 1890, for care during her approaching confinement, her regular physician being necessarily absent.

She was a large, fleshy woman, and inclined to take on adipose tissue rapidly. She had had some difficulty in her first confinement four years before, but since then had remained in good health. The case came into my hands at the beginning of the eighth month, the patient complaining of swelling of the feet and ankles and some headache.

I at once tested the urine and found it in about half of the usual quantity, and albumin about a fifth per cent.

She was at once placed upon the usual prophylactic measures, with strict admonition concerning diet, consisting chiefly of milk. The urine was daily tested, and, in spite of keeping the system depleted by means of cream of tartar and potassium acetate, twenty grains every six hours, for its diuretic and cathartic action, also Epsom salts, the urine remained small in quantity with albumin increasing.

Seeing these symptoms continue, the question arose as to the advisability of inducing labor at once, as the child was known to be alive.

Finally, in accordance with the conservatism of most authorities of the day, since no actual convulsion had occurred, although I anticipated an outbreak at any moment, I decided to await Nature's developments.

Just two weeks from the time I first saw the case, at eight months and a half, I was hurriedly summoned by the husband at 6 A. M., who stated that his "wife was dying."

I rushed into her room and found her in a severe convulsion. As I entered she exclaimed, "Oh, my head!" I at once injected hypodermically a quarter of a grain of morphine with one one-hundred-and-twentieth of a grain of atropine. No effect was produced except a transitory lessening of the convulsions, but they continued to come and go.

I at once summoned a brother medical officer in consultation, meanwhile attempting to control the spasms with chloroform. On his arrival we agreed that if venesection did not stop them, premature delivery would be necessary. An attempt to find the median basilic vein proved utterly futile, owing to the enormous quantity of fatty tissue lying over these

veins. Seeing this, the spasms increasing in violence and frequency, a fatal result to both mother and child was feared. Chloral, twenty-five grains, and bromide of potassium, forty grains, were now given by enema. Venesection was abandoned and Barnes's rubber dilators, beginning with the medium size, were inserted into the os uteri successively and retained about ten minutes each. These "dilators" were filled with cold water by means of an ordinary Davidson bulb syringe attached to their tubes.

In half an hour the dilatation was complete. The forceps was easily applied and a large female child was extracted. Of course, it had been destroyed by the violence of the convulsions. During this whole time the woman was wholly unconscious and remained so for thirty-six hours afterward.

Just here I may add, in speaking of venesection above, that when it was found impossible in the arm, recourse was had to four large wet cups directly over the kidneys. Ordinary glasses were used and about a pint of blood was extracted.

This undoubtedly lessened the frequency of the attacks for the time, during which time the dilatation was accomplished.

After emptying the uterus, contraction took place, so that very little blood was lost. Free action of skin was encouraged by the application of hot bottles, etc. Urine removed by catheter was small in quantity, very dark, and heavily laden with albumin—three quarters per cent.

No recurrence of the convulsions took place, though the patient remained drowsy and semi-conscious only for the next twenty-four hours. Copious antiseptic vaginal douches, very hot, were used daily thereafter for three weeks. Temperature did not exceed 100°. Diet was limited to hot milk with the free use of water. The urine was accurately tested daily as to quality and quantity. The albumin at delivery was a half per cent. with granular casts. The estimated urea in twenty-four hours for several days was only two hundred and fifty grains. As a result, uræmic symptoms continuing, the patient was put upon Buffalo lithia water *ad libitum*; no other water allowed. About three quarts were drunk daily at first. The urine increased in quantity by next day, color improved, quantity of urea increased to three hundred grains. Head symptoms improved. No medicine was given except to keep the bowels open. This lithia water was depended upon wholly in increasing quantities. At the end of six weeks the patient was in good condition and her urinary functions were almost normal. She then decided to go off for a visit to a neighboring public resort, in order to try the effect of a chalybeate water said to have proved excellent in kidney troubles.

One week's sojourn there produced such discomfort, constant headache, puffing around the ankles, and general malaise that she returned. Examination showed that the urine was only thirty-two ounces in twenty-four hours; albumin, one quarter per cent; some casts; urea, two hundred and sixty grains.

The patient was placed upon the former treatment, with immediate improvement in every way. The lithia water was gradually increased until urea showed five hundred grains in twenty-four hours, and seventy-five to eighty ounces of water passed daily.

The patient then rapidly convalesced and made a complete recovery.

The patient being of a heavy, plethoric type, I believe the chalybeate water was decidedly injurious.

The marked benefit as a result of the natural lithia water shows the power of this drug, in its natural state of solution, in dissolving the rapidly accumulating urea out of

the minute uriniferous tubules, thus removing this vital poison, always so prominently existing in these cases.

No more trying conditions ever confront the attending physician than these cases of ante-partum, intra-partum, or post-partum eclampsia. In the first two conditions we have to deal with the problem of two lives. Given the conditions of a living child, at seven to eight months and a half, with the mother showing marked symptoms of impending eclampsia, shall we procrastinate, temporize by the various means usually adopted, till finally we are forced to act after the explosion has occurred, and probably extract a still-born fetus?

In the above-reported case might I not have saved one life by interfering sooner? This child was certainly viable soon after the case came into my hands.

The discussion of Dr. Green's interesting paper on Eclampsia, in the *American Journal of Obstetrics* for July, 1893, at the meeting of the American Gynecological Society, shows a marked difference of opinion among medical men as to our capability to prevent entirely the full development of puerperal eclampsia when we have had charge of the case early.

I certainly believe with those who realize our total inability to prevent this climax, no matter how watchful we are in the early stages of many cases.

Yet the question of interference at an earlier stage than is now sanctioned by conservative obstetric methods is one which can only be decided by an analysis of the results obtained in a large number of cases subjected to the two different modes of treatment.

Of course, up to the seventh month the advisability of every conservative measure will hardly be questioned by any one.

I have seen nothing in the journals concerning the free and persistent use of this Buffalo lithia water in the very earliest stages of these cases.

I believe, if this were more generally adopted, many of them would escape the further development of the insufficient renal function.

My only reason for presenting this case is to call attention to its beneficial effects.

OOPHORECTOMY FOR THE RELIEF OF DYSMENORRHEA AND OTHER SYMPTOMS SUPPOSED TO BE DUE TO THE PRESENCE OF AN INFANTILE UTERUS.

By JOHN R. HINKSON, M. D.,

SURGEON TO THE ASTORIA HOSPITAL, LONG ISLAND CITY, N. Y.

Miss B., aged twenty-four, was seen by the writer in March, 1892. She then complained of frequent attacks of fainting and of great pain in the left iliac region, which at times became paroxysmal. She also had attacks of melancholia for which she could assign no reason, and had been troubled with insomnia for several years. She stated that menstruation commenced at fourteen years of age and occurred at intervals of three weeks, being always accompanied by great pain.

Three years ago she was ill for three weeks, and, from her statements, the writer believes that she had an attack of pelvis

peritonitis. Subsequent to this, menstruation occurred every two weeks and she was troubled with a constant pain in the left iliac region which became more severe during menstruation.

There were no abnormal physical signs in connection with the heart or lungs. Her family history was good.

She was at first treated for hysteria, and large doses of bromide of potassium were given to relieve the insomnia, but without effect. Finding that her case did not yield to medicinal treatment, the writer advised her to undergo an examination, as he believed that the cause of her trouble was due to some abnormal condition of the uterus or ovaries.

After several months she consented, and, on making an examination under chloroform, only an inch and a half of the sound could be introduced into the uterus. On abdomino-rectal examination, the finger in the rectum could be felt by the hand on the abdomen, and the body of the uterus appeared to be extremely short. The same feeling was conveyed by passing the sound into the bladder and the finger in the rectum. The cervix was well developed.

From the foregoing signs it was believed that the patient had an infantile uterus, but, taking into consideration the pain in the left iliac region and the statement of what appeared to be an attack of pelvic peritonitis occurring three years before, the writer was led to think that there might be a diseased condition of the left tube or ovary, notwithstanding that no tumor could be felt on examination.

She was advised that the only hope of relief was in an operation, to which she did not give her consent for several months, and not then till the pain became too great to endure longer.

On July 17, 1892, the patient was anesthetized and an incision three inches long made in the median line of the abdomen. On exploration, the uterus was found to be extremely anteverted, preventing the passage of the sound till it was straightened by the hand in the abdominal cavity, when it readily passed to the normal depth.

The right ovary was then examined and found to be cystic and adherent to the tip of the vermiform appendix.

The right ovary and tube were then removed, the tube being ligatured close to the uterus. During this process the cyst ruptured and some clear fluid escaped into the abdominal cavity.

On examining the left ovary, it also was found to be cystic. The tube was somewhat thickened, caused, as the writer believes, by a salpingitis occurring three years before, when she was confined to her bed for three weeks.

The left ovary and tube were removed in the same manner as the right one had been, and, all hemorrhage having been arrested, the abdominal wound was closed with interrupted sutures of silver wire and the peritoneal cavity drained with iodoform gauze. The dressing was composed of iodoform and corrosive-sublimate gauze, over which was applied a thick layer of absorbent cotton.

During the operation a sound was held in the uterus by an assistant. This very much facilitated the finding of the ovaries. After the operation the temperature fell to 96.4° and hot-water bottles were applied. In four hours the temperature rose to 101°. The patient vomited frequently for four days, and complained of considerable pain, necessitating the administration of morphine in doses of three quarters of a grain hypodermically.

On the day following the operation the dressing, which was quite moist, was changed. There was no suppuration or any offensive odor from the wound. The temperature was 101.6° and the pulse 110. There was a sanious discharge from the uterus. This continued for two weeks.

On July 21st the bowels were moved with an enema, the dressing was changed, and the gauze employed for drainage was removed. The appearance of the wound was perfectly healthy. Temperature, 100°; pulse, 110.

On July 26th the dressing was again changed and the sutures were removed.

Suppuration was discovered at the site of drainage and the two lower stitch holes on the left side. Temperature, 100.4°; pulse, 100. After this date the dressing was changed and the wound irrigated with hydrogen peroxide every day for the five succeeding days.

During this time the temperature ranged from 99° to 101°, and the pulse from 75 to 90. After this the dressing was changed every second day, and the pulse and temperature became normal on August 7th.

A suppurating sinus remained at the lower extremity of the wound where the drainage had been employed, and did not close till September 1st.

At this writing, five months later, the patient weighs one hundred and seventeen pounds—three pounds in excess of her weight the day previous to the operation. She sleeps well and is entirely free from pain. There has been no recurrence of menstruation.

SOME CONSIDERATIONS

RESPECTING EXAMINATIONS AND TREATMENT IN HETEROPHORIA.*

By GEORGE T. STEVENS, M.D.,

NEW YORK.

PERHAPS I may be pardoned, in consideration of the subject assigned for this day's discussion, if I indulge in some satisfaction when I contrast the sentiments prevailing among oculists at the present time regarding that subject with those which prevailed only a few years since.

At the meeting of the Ninth International Medical Congress, held in this city in 1887, just six years ago, I read before this section, the same gentleman presiding who now occupies the chair, a paper with the title *Some Important Problems respecting Insufficiencies of the Ocular Muscles*.

Directly after the publication of this title in the medical journals I was violently criticised in some of the leading periodicals, not for the special views contained in that paper, for it had not yet appeared in print, but for the presumption and folly of suggesting that there were any problems regarding what were then known as insufficiencies of the ocular muscles. The public was emphatically informed in effect that all the problems in this department of science had long ago been solved, and that there was nothing more for me to suggest or for the profession to consider.

The writers undoubtedly voiced the prevailing sentiment of the profession at the time; otherwise, had they expressed only their individual views, there would be no occasion for recurring to the incident here.

To-day, six years later, this section of this great congress assigns one entire day to the study of the very problems which, six years ago, we were told had already reached a final solution.

When, at the request of the president of this section, I

* Read before the Ophthalmological Section of the First Pan-American Medical Congress.

consented to participate in this discussion, I was in doubt what I could best offer for your consideration. In reply to my appeals to the president to tell me what part of the subject he wished me to present, he gave me the whole field to discuss, but he did not give me more than one day in which to do it. At the last hour I have determined to speak not of new things, but to direct your attention to some things of which I have already spoken, but placing them in a light which may possibly encourage some inquirer. If I shall be able to accomplish that I shall be glad that I have chosen this course.

In the first place, I venture some words in regard to examinations for heterophoria. Perhaps the suggestions that I am to make are needless repetitions, yet I am led to the belief, by examining much of the current literature of the subject, that it may not be out of place to call attention to the fact that deductions from many points of view and much careful and logical thinking are essential elements in the making of these investigations.

It is not, in the brief time allotted to me, possible to go into any details of examinations, but permit me to suggest an order and some important points which may be brought out by an orderly examination.

The facial expression of our patients will often give us strong hints of what we may expect to find. Indeed, these expressions are so well marked in their relations to the condition of the ocular muscles that one who has had considerable observation and who is withal a close observer will rarely fail to make a general, though tentative, diagnosis of his case without the aid of his instruments. Of course this is not a working diagnosis, but it is a valuable aid to that which is to follow and often serves to direct the attention to slight inconsistencies in the instrumental examinations which otherwise might escape notice. A glance at the eyes themselves and at their movements prepares us, after we have learned what is necessary of their refractive condition, for the more exact examination.

First in order, after considering well the facial expressions and the movements, the phorometer is brought into use and its results are recorded. If other instruments than the phorometer are employed for the purpose of indicating the manifest heterophoric tendencies either by induced diplopia or by contrasting images, let me repeat what I have already said elsewhere—that no instrument of this class which is held near the eyes, or the correcting prism of which is brought close to the eyes, can be relied upon for such exact examinations as should be obtained if we are to make a critical study of our case. Some of the instruments which are in common use will give us false information to the extent of many degrees. The tendency to overcome a deviation of the images from the vertical or the horizontal lines is similar if not as strong as the instinct to unite images by overcoming prisms. If the phorometer is placed at the distance of from four to six inches in front of the eyes, these adjustments, which are so naturally made, are either entirely or in large measure neutralized.

In whatever way we ascertain the phorometric measurements, we must bear in mind the important fact that we have arrived at only a single stage of the examination and

that other classes of facts must enter into the question of interpretation of the ocular adjustments. We must ascertain the abducting and the sursumducting ability, and perhaps also the adducting ability. We are to observe the action of each eye when temporarily excluded from fixation and when it returns to fixation.

If, assuming the standard of the abduction to be eight degrees at twenty feet—a standard adopted by myself many years ago and which experience has shown to be a correct one—we find that it corresponds to the record of the phorometer, and if the sursumduction right and left also corresponds to the indication of the phorometer, we may fairly assume that we have an uncomplicated case in which the reading of the phorometer may be taken as an index of the actual condition so far as the kind of tendency is concerned. But if, as often happens, the records of the various tests—for example, the phorometer, the abducting ability, the deviation in exclusion—are not in harmony, we are to search for the cause of this want of correspondence. For example, if by the phorometer we find esophoria two degrees and abduction six degrees, or even five degrees, with equal sursumduction and no hyperphoria, we arrive at the conclusion that we are dealing with a case of simple esophoria, two degrees of which are now manifest. On the other hand, should we find esophoria of two degrees with abduction of ten degrees, or exophoria of two degrees with abduction of six degrees, we may at once conclude that we have a complicated case, even although there is no manifest hyperphoria, and one which must demand the most careful attention before any radical measure of treatment is adopted.

There are so many forms of these contradictory indications that I can only allude to them as a class as intimations for the most careful study of the cases and as warnings that we must in no case assume that one class of testing tells us the whole truth. We should note the facial-expression test by the phorometer, try the ability to overcome prisms, examine carefully the rotating ability of each muscle, and the action of one or other eye when excluded from fixation. These and often many other points are to constitute elements in our examination.

And here let me add that if we are at the present stage of knowledge of this subject to publish our case, the bare statement that the patient had an abduction of only five degrees, or that the phorometer showed a certain degree and form of heterophoria, will not suffice for critical readers. Such readers must know all about that case. They have seen too many instances in which an abduction of twelve degrees may have been associated with an actual converging squint to accept a bare statement of the extent of abduction and adduction or the registration of the phorometer as having any scientific value. Moreover, such a statement leaves in the mind of the critical reader the impression that the writer had not himself ascertained the remaining facts necessary to a just conclusion in regard to the nature of his case.

A single word more regarding these examinations. Contrary to the general impression and contrary to my own teachings of many years ago, the correction of the refract-

ive anomalies by glasses during an examination of this kind is not only in the vast majority of cases unnecessary but positively detrimental, as the glasses themselves often lead to error and their absence does not, as a rule, influence the muscular conditions.

And now that we have in the few minutes gone over the examinations in heterophoria—a subject which for its proper consideration would require long-continued and patient study—let us as briefly sketch an outline of some of the methods for the management of the defects which we may have discovered. Let no one suppose that this sketch can be in any degree more than suggestive.

One of the first of the elements in the management of these cases is patience. The oculist who imagines that he can measure and correct his cases of heterophoria in an offhand manner has not reached an understanding of the first principles of the subject. A case which at first appears quite simple and easy to handle may prove to be one which for its best correction may demand the exercise of great skill and of unwearied patience during many months.

We can not know when we begin the treatment of a case of heterophoria the full meaning of the indications which we then discover. One who thinks that he has found an instrument which will reveal latent heterophoria is surely laboring under a misapprehension. As we go on in the treatment of these cases new difficulties may arise and new efforts may be demanded. This is no reason for not beginning the work, and less for abandoning it before completion.

I have sometimes illustrated these progressive difficulties by recalling the experience of one who climbs a mountain. He sees before him a height which appears to him the summit which is to reward him for his effort, but when he reaches it he sees before him another even higher than the one which he has surmounted. He ascends higher, and when at length he attains to the second height the real summit is still above him. Is he therefore to say, "There is no end of this, and one might climb indefinitely without finding the summit?"

There is a summit, and one may reach it if he has the needed strength and courage.

I am sometimes asked by my colleagues if there is no end to the treatment of these cases. Does not the condition which has been apparently removed return? Must the treatment not continue indefinitely?

The heterophoric condition which has been in any measure properly corrected does not return, but that part of the original defect which was at one time latent may at a subsequent time become manifest.

There is as surely a limit to this work as there is a final summit to the mountain, and when one reaches that limit he has an infinitely greater satisfaction than he who finally gazes upon the stretch of hills and plains and lakes from the elevation which he has earned.

Many who do not care to take the trouble to climb decline to accept the reports of those who do, and many an eminent man who has lingered about the foot-hills of this work is incredulous because he can not obtain the same

grand view that has been described by some one who has gone beyond.

An essential to success in this work must be a thorough knowledge of the principles governing the tensions of the muscles with which we work.

Instruments can not know these principles. They are only to be learned by long and patient research on the part of the oculist.

But what immediate steps are we to take for the relief of our patient with heterophoria?

We may give him prisms. Will they help? Sometimes, and to a very limited extent. In the large majority of cases they will serve little purpose, or perhaps produce decided annoyance. In the cases in which they afford relief, that relief is in no sense the effectual degree of comfort and the absence of reflex trouble which may be expected from the more radical relief of abolishing the heterophoric condition.

Then we may give to the muscles the gymnastic exercise which may be accomplished by the overcoming of prisms.

That good may be accomplished in this way I have long ago demonstrated. The fact remains that the method is but tentative. The anomalous conditions remain, and the unpleasant symptoms will probably return. A vast experience with these two methods enables me, I believe, to speak of them with some degree of authority, and I do not hesitate to say that, while they have much value to recommend them, and while no one can afford to overlook them, they fall far short of the more rational measures of actual adjustments by means of equalizing the tensions in such a way as to establish practical orthophoria.

We may accomplish this by graduated tenotomies and tendon contractions.

Are we then to operate for all cases of heterophoria? By no means. The surroundings of the patient, his methods of work, the importance of the case, and many such considerations must enter into the question of treatment. The best judgment of the experienced surgeon is here in demand.

In most cases, however, in which important reflex disturbances are the result of heterophoria we shall find operative measures imperative.

How are we to operate? I must reply first in the negative. How are we not to operate? We are not to operate by the methods described in the text-books which I have seen. Indeed, if I may be permitted to diverge from our strict line of thought in a single sentence, I will add, we should not for any condition of heterophoria, strabismus, or paralysis perform any tenotomy after the manner thus described. We should never operate in such a manner as to disable our muscle in its function of rotating the eye.

We are told of tenotomies which are so far in excess as, after the relaxation, for example, of a single external rectus, to leave the patient with homonymous diplopia for some months. It is true that single vision may in some instances return and that even a condition of exophoria may succeed, but if the ability to rotate that eye well to

the temple has been lost at the moment of the operation, it will never return without a readjustment of its insertion. Let me impress this important fact upon the mind of every one who operates for heterophoria that, whatever may happen in regard to phorometric indications, the rotation of an eye after tenotomy does not undergo any very important change, and that we can not at the time of the operation disable this function in the expectation that the tendon will readjust itself. We should never attempt a complete and final correction on a single lateral muscle. If we have even a low degree of heterophoria, we should proceed on the assumption that when we have finished the work we shall have relaxed the lateral muscle of one eye exactly, or as nearly exactly as we are able to determine, as much as we have that of the other. There is an important consideration, too often overlooked in operations for hyperphoria and especially for hypertropia, that the gaze of the great majority of our patients must be habitually directed downward. Hence a tenotomy of an inferior rectus is, as a rule, to be avoided, unless there are positive indications for selecting that muscle.*

Before any operation, even in well-defined cases, more than one, and usually many examinations should be made. Prismatic glasses, usually less than a nominal correction of the manifest heterophoria, should be given and the patient should be charged to use them continuously during waking hours. From time to time, during the use of these glasses, examinations may indicate a greater degree of defect than was at first found and the prisms may be strengthened. The use of temporary prisms which are kept by the oculist, as suggested by me some years ago, has now become somewhat general. After a time, varying from a few days to a few weeks, we have either found such a degree of heterophoria as would be all that we might reasonably expect to relieve by a single operation without risking a restriction of the rotating power of the muscle to be operated upon, or there has been a halt in the further manifestation of heterophoria. We may now proceed with our operation if such a course is chosen. I have already more than once described this operation, but I will venture to do so again in order to introduce some details concerning which inquiries have often been made.

Let us suppose the operation to be done for esophoria, and that we have determined to do a graduated tenotomy of the right internal rectus.

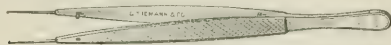


FIG. 1.

• The speculum being in place, the patient directs both eyes well to the right. The surgeon takes with his fine forceps (Fig. 1) a minute fold of conjunctiva at the center of the

insertion of the tendon. Drawing the little fold of conjunctiva slightly away from the eyeball with the extreme points of his tenotomy scissors (Fig. 2), he snips the fold trans-



FIG. 2.

versely so that an opening about half a millimetre in extent is made through the membrane. Now the forceps, the points being closed, is pressed into the little opening and slightly backward, when the points are permitted to spring apart, after which they are again closed, this time holding a small fold of the tendon just behind the insertion. This little fold of tendon being put on the stretch, the fine-pointed scissors, by little snips, dissects the tendon from the eyeball between the layers of the capsule (which should remain intact) toward one border of the insertion. The sense of feeling of the fingers against the rings of the scissors will, in the hands of one skilled in this operation, inform him of his approach to the border and warn him against its destruction. In extreme cases, like strabismus, the surgeon may determine to continue his section through the border, leaving uninjured, as far as possible, both the anterior and posterior lamellæ of the capsule, as well as the expansion at each border, to hold the muscle in relation to the eye. Turning the scissors then in the direction of the other border, this portion is dissected with equal care.

With as little delay as possible the patient is placed in the examination chair, and the test by the phorometer and by prisms is made. It is safe in very moderate cases, by the first operation, to carry the correction to 0° and the abduction to 10° or 11°, for at the moment there is likely to be a greater nervous relaxation than will be found an hour or more later, and it may be reasonably expected that within a few days there will still be a manifest esophoria sufficient, especially if the temporary prisms are again brought into use, to permit of a relaxation of the corresponding muscle of the left eye equal to that now being done on the right. Such an extent of relaxation may, however, be contraindicated should it appear that the nasal rotation, which should be tested before the patient leaves the operating chair, is in danger of being unduly restricted.

Perhaps we find that esophoria is still manifest, and that the rotation is still abundant. The patient returns to the operating chair, when the surgeon, introducing the slender, blunt hook (Fig. 3), feels for the point to which the sec-



FIG. 3.

tion has been made, either above or below. He soon finds, if he is expert, whether the section has been carried far enough in that particular direction, and, if so, he searches at the other extremity. If he now finds room for carrying the section farther, he, using the slender hook as a guide, or returning to his forceps, increases the effect of the tenotomy

* Should a correction for a considerable degree of hyperphoria or of hypertropia be required, the correction should, of course, be divided between the superior rectus of one eye and the inferior rectus of the other. The statement above applies to cases especially in which only a moderate relaxation is required. Considerable restriction of the upward rotation is to be avoided on the one hand and the turning of the axis of the eyes upward on the other.

by carefully executed snips of the scissors, and after an examination this process may be renewed if required.

If by chance we find that we have erred in judgment and have gained an exophoria with abduction exceeding 11° , we must at once introduce at the exact center of the free end of the tendon a very delicate suture, carrying it through the cut edge of the conjunctiva at the corneal side. There is an occasional exception to this rule, in which, if we permit the patient to wait for an hour or less, the exophoria and excessive abduction may disappear. We make this suture to include as little as possible of either tissue, and then draw it with great care until we have overcome the exophoria, as shown by the phorometer, when the knot may be made fast. This process, although sometimes demanded in the practice of the most skillful, is always unfortunate. Those who tell us that we should cut the tendon across and then introduce the suture are, I am sure, in error.

Should it be found on the following day that the result is not what could be desired, the suture may be renewed, or by removal an increased effect of the original operation may be obtained.

There are conditions which render it almost imperative in a certain small proportion of cases to make adjustments in lateral tendencies which, although not more than nominally correct at the time of making, are such that the experienced surgeon feels almost sure that when he is better able to adjust for a supposed hyperphoric condition, will at length prove overcorrections. Such overcorrections when they become manifest must be restored to equilibrium. Now, it should be an axiom, a rule never to be forgotten, that we have no right in any case to weaken a muscle because we or some one else has weakened the opponent of that muscle. For example, if, as the result of a tenotomy of the internus of one eye, we have an exophoria of even as little as a single degree, it is inexcusable to cut the externus in order to relax that muscle equally with the excess of relaxation of the other.

Let me repeat, we are not to correct an overcorrection by a new tenotomy.

In all such overcorrections we should resort to tendon shortening or advancement of that tendon which has been too freely relaxed. If the original tenotomy has been done in the manner I have just described, there will be little difficulty in performing a correction which shall leave no cicatricial bands to interfere with the freest action of the muscle.

We begin in this operation, as in that for tenotomy, by making a transverse slit of half a millimetre in extent over the point of insertion of the tendon. Then, lifting the border of the conjunctiva nearest the cornea by the fine forceps, a little pocket is made by the points of the scissors or the lance probe (Fig. 4), extending under the conjunctiva

tially, as the case may be. If it is entirely dissected, then, by means of the scissors point acting as a probe or by means of the lance probe, the tendon should be absolutely freed from any attachment to the surrounding tissues. The fine tendon crotchet (Fig. 5) now catches it at the center and



FIG. 5.

a little behind the section and draws it forward, or, if the hook proves to be ineffectual to hold it during the next stages of the operation, the fine fixation forceps with catch may be used (Fig. 6). The tendon is drawn forward through the little conjunctival opening, when one of the needles from

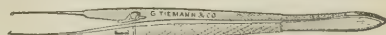


FIG. 6.

a thread of silk armed at each end with a needle is passed through the central part from a half to a full millimetre or even more behind the cut extremity. Bringing the needle forward until the two extremities of this thread are about equal in length, an assistant carries the lance probe into the pocket already made, and one of the needles, passing by the side of this probe, which acts as a guide, is made to penetrate the conjunctiva at the extreme end of the pocket and the thread is drawn through. The other needle and its thread are managed in like manner, the second needle penetrating a little to one side of the first in order to allow between the two threads a little bridge of tissue. Now, the assistant holding the conjunctiva at the border of the wound by means of fine forceps, the surgeon draws upon the ends of the thread, forcing the cut end of the tendon into the little pocket, and when he has thus advanced it to his satisfaction he fastens the threads by tying them across the little bridge.

No cover and no especial care is required beyond that needed for perfect cleanliness, and on the third or fourth day the suture may be removed. The greatest danger in these cases arises from the use by the patient of a soiled handkerchief with which he rubs the eye. Against this danger the strictest injunctions are to be enforced.

This operation, with such modifications as may be required, I have performed during the past five or six years in some hundreds of cases, where advancements have been required, and it has been witnessed by some scores of my colleagues.

33 WEST THIRTY-THIRD STREET.

THE MECHANICAL TREATMENT OF OSTEITIS OF THE KNEE.*

By HENRY LING TAYLOR, M.D.

THE term osteitis of the knee, or "white swelling," is used to designate a tubercular, purulent, or mixed process which usually begins in an adjacent epiphysis or in the

* Read by title before the American Orthopaedic Association at its seventh annual meeting.



FIG. 4.

more or less toward the cornea in proportion to the greater or less effect which we propose to induce. The pocket having been made, the forceps seize the central portion of the tendon and it is dissected from the eyeball entirely or par-

synovial membrane, and, if unchecked, finally involves most of the joint structures.

Some of the classical symptoms of inflammation—namely, pain, heat, redness, swelling, and impaired function—are less marked in chronic than in acute affections; the first three may be entirely absent at certain stages or in certain types of chronic knee disease. Tenderness, especially circumscribed tenderness, is more constant and of more significance as an indication of osseous involvement, as recently pointed out by Senn; but in all stages of joint disease, where the synovial membrane is irritated, the tonicity of the muscles acting upon the joint is of more importance as an indication of the condition of the joint in difficult or doubtful cases than all the other symptoms put together, and always calls for critical examination. Atrophy of the limb above and below the joint is also a constant symptom. Whatever the irritant or pathological process, if continued and involving the joint, certain symptoms regularly appear as the result of reflex spasm acting upon the joint under the mechanical conditions present; and certain deformities regularly accompany chronic inflammation of the knee, as the expression of a tendency to a dynamical equilibrium of the different forces acting upon the joint. The thigh muscles are stimulated through reflected joint irritation, and the flexors being more advantageously placed than the extensors, the knee becomes gradually more and more flexed; from preponderance of the biceps at the outer side of the knee, and from its more advantageous leverage through its insertion into the head of the fibula, the tibia is rotated out and abducted; and as the posterior group of muscles pull the head of the tibia directly backward when the knee is semiflexed, the head of the tibia undergoes the characteristic subluxation backward, there being no adequate force to oppose it—that is to say, the mechanical arrangement of the joint and its muscles favors flexion, eversion, abduction, and subluxation. This is also seen after poliomyelitis, where similar deformities are more gradually produced without spasm.

Under the reflected stimulus of an irritated joint, however, the muscles tend to produce by their exaggerated but irregular tonicity a position of less discomfort—that is, of less tension and less irritation. Volition has little to do with it. If irritation is intense, even in the semiflexed position, flexion may become excessive without relief, and in most untreated cases, where the joint irritation is considerable and long continued, eversion and subluxation and often abduction are gradually produced, clearly unaided and unhindered by volition.

The knee, if considerably damaged and left to itself, gradually becomes more or less fixed in this flexed, everted, abducted, and subluxated position, from thickening of the ligaments, adhesions, and the adaptations of the hard and soft structures to the deformed position. In certain cases bony ankylosis may finally occur, or the patient may succumb to a complicating tuberculosis, local or general, septicæmia or its sequelæ, or exhaustion. It is also true that milder grades of the affection do occur, which get well with a more or less useful joint under comparatively simple treatment.

The indications for treatment in this affection, and also in chronic synovitis of the knee, are local and general.

The general indication for treatment is to improve the nutrition of the patient, and thus insure a blood supply of good quality to the diseased area to favor the reparative process. The principal means to this end are an abundant supply of fresh air, a nourishing diet, the relief of local irritation, and the correction of complicating disorders. Local mechanical treatment is the mainstay in meeting the general indication, since it relieves the organism of the depressing drag of a constant irritation, whether painful or not, and permits the patient to pass much of the time in the open air. These two elements are powerful aids in stimulating appetite and cheerfulness and in banishing sleeplessness and nervous irritability. One of the most gratifying results of proper mechanical treatment is the marked and speedy gain in general health and vigor.

The local indications for treatment are to provide conditions favoring the process of repair at the site of disease, to prevent or correct deformity, and to restore so far as possible the functions of the joint. They vary according to the stage and grade of the disease and the special features presented, and are met by mechanically protecting the joint from pressure and internal and external traumatism, thus favoring a more normal local circulation; by gradual correction of the deformity, and later by the protected use of the muscles and joint. In the stage of irritation and disintegration the local circulation is defective and local nutrition is impaired from distention or from articular pressure. The sore joint surfaces are jammed together by abnormal muscular spasm; this increases irritation and local necrosis, multiplies the evil effect of movement and jar, and is unfavorable to the healing process. The mechanical indication is to keep the joint surfaces from pressing and rubbing against each other, in order to allay muscular spasm and prevent injury. This is done by applying mechanical counter extension and fixation to the joint, the patient being kept in bed until the acute symptoms subside. Rest in bed for a time is necessary where much irritation exists, but does not alone meet the local indications. Mechanical counter-extension must be added to relieve the pressure upon the tender joint surfaces. This counter extension must be applied with precision in the lines of present deformity or so near them as to be perfectly comfortable. Indeed, if pain is present and rest is disturbed, these symptoms are regularly and promptly relieved by proper counter extension; the relief from pain is often instantaneous, as in the following case:

A young man who had been in such pain for months from an exacerbation of synovial inflammation that he had been kept under morphine, and that his physician and friends had considered it impossible to move him, was finally brought to New York. Fixation alone had been of small avail, but he breathed a sigh of relief the moment the straps of the counter-extension apparatus were tightened, and he remained free from suffering from that time, with coincident subsidence of the inflammation.

The joint then must be put to rest in the strictest sense until all irritation has disappeared, the patient's health has

improved, and we have reason to believe that the healing process is inaugurated. The time spent in bed will be from four to eight weeks, but the splint is applied at once, and worn continuously day and night. When the patient is recumbent a weight of four to eight pounds is attached to the apparatus, which may be so contrived that most of the varying indications at different stages of the disease can be met and the joint controlled at the will of the operator.

The apparatus preferred by the writer consists essentially of Dows's supporting splint, devised by Dr. C. Fayette Taylor, to which are added a snap joint at the knee and a steel circle for fixing or changing the angle of flexion.

By means of the apparatus the knee is supported laterally and fixed at the angle of choice, which must be such that no leverage is exerted, and counter-extension is secured by a perineal strap and by adhesive plasters applied to the leg below the knee. A ratchet or screw extension is not required, as moderate force only is necessary for the knee, much less than for the hip, where the muscles are more powerful, and is obtained by traction on the strap attached to the plaster and secured by a buckle. The leg bar of the apparatus must be rotated to nearly correspond with the eversion, so that no twisting force is exerted on the knee. If the fixation is in the proper position without leverage or torsion, and the traction is properly applied, muscular spasm will relax by degrees, and a corresponding correction should be made in the apparatus. The restoration of local conditions favorable to healing is one indication, and the correction of the deformity another, but the two should proceed coincidently. Allaying muscular spasm by constant traction with fixation and, when necessary, recum-

bency, permits a gradual and painless rectification of the deformity in a large number of cases, and as rectification of the deformity progresses, the mechanical conditions for counter-extension and fixation are more readily and perfectly fulfilled, and in many instances the joint is put into a condition more favorable for healing.

Many forms of apparatus are used to meet special indications, but the one we have found most generally useful and most readily adjusted to meet varying indications is the lock-joint supporting and protective apparatus already mentioned (Fig. 1). It is made of steel properly lined with leather, and consists of two bars with an accurate and substantial joint at the knee, which, however, is

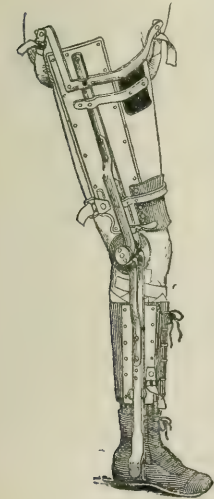


FIG. 1.

fixed by a spring during the first stage of the treatment. To the bars are riveted slightly concave steel thigh and leg plates, fitting accurately the external aspect of the limb. The

lower bar, made of two overlapping pieces to allow of adjustment, reaches slightly below the foot and is provided at the lower end with a slip-joint, fitting into an L-shaped steel plate in the shoe, which may be applied and removed without disturbing the brace; the length of the brace is such that considerable space is left between the heel of the foot and the sole of the shoe (Fig. 2). To the leg-plate is riveted a leather legging which surrounds the leg, lacing up in front. At the upper end of the apparatus steel horns carry the perineal strap, an anterior thigh-plate keeps the apparatus from falling backward, and a knee-plate carried by a curved, protected steel band and fitted above the inner side of the knee prevents lateral motion. A strap above the popliteal space and a buckle on the leg-plate to receive the adhesive plaster webbing completes the apparatus, which should be made of superior materials and workmanship to insure the perfect adaptation and solidity which alone can give the comfort and instinctive confidence necessary to successful management. A slight elasticity or "give" in the apparatus will set the irritated muscles on guard and check progress. A three- or five-tailed adhesive plaster (Fig. 3)* is applied to the outer side of the leg below the knee before the apparatus is put on. If the knee is sore and inflamed, the patient will still lie in bed after the application of the apparatus to insure perfect rest and absence from jar. When the patient can be moved comfortably with the brace, and inflammatory action seems to be regressive, the patient may be allowed to sit up or walk about on crutches, allowing the affected limb to hang. When healing has progressed still further, the patient may walk between two crutches and finally with a cane, taking the weight upon the perineal strap of the apparatus, which is "itself an ever-present crutch for the purpose of supporting the weight of the body during locomotion."†



FIG. 2.

When so far advanced toward recovery that inflammation is absent, the knee may be slightly bent when seated by releasing the catch, which, owing to the peculiar construction of the release, can easily be done through the clothing (Fig. 4). Later still the catch may be held open by inserting a rubber or wooden wedge beneath the spring, and the patient may be allowed to use the knee with motion, which may be

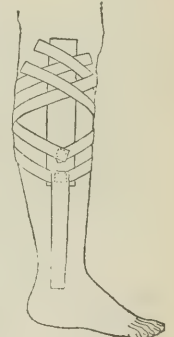


FIG. 3.

* A Ready Method for Counter-extension at the Knee. By the writer. *Boston Medical and Surgical Journal*, October 16, 1890.
† On the Mechanical Treatment of Synovitis of the Knee Joint. Dr. C. Fayette Taylor. *New York Medical Journal*, July, 1893.

confined within selected limits by placing steel stops on the joint disc, the delicate, newly-healed joint structures being protected from friction and superincumbent

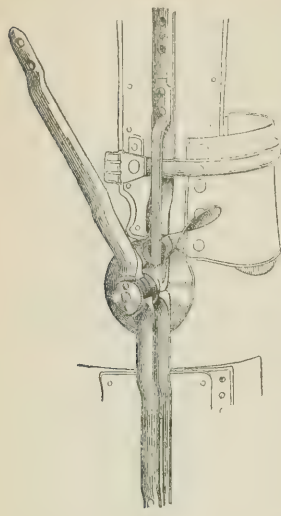


FIG. 4.

weight and from lateral strain by the apparatus with its load-bearing perineal strap. Preparatory to discontinuing the use of the apparatus, the weight of the body may by degrees be allowed to rest upon the knee by lengthening the perineal strap and by shortening the leg-bar, so that the heel is allowed to approach or touch the sole of the shoe. It is believed that the gradual introduction of the muscles and joint to their natural function is not only safer than an abrupt change from fixation to walking without support,

but that the prescribed graduated use of the muscles and joint without harmful friction, in the absence of inflammation, is itself a remedial measure of high value in the recovering stage, through its effect in improving the circulation and nutrition of the parts, thus favoring their more perfect restoration.

Nothing could be further from the purpose of this paper than to advocate any particular form of apparatus as pre-eminently excellent in the treatment of osteitis of the knee; rather the intention has been to emphasize the varying indications presented by the disease in its different stages, which may be met in different ways once the principle of continued positive protection with the allaying of local irritation is recognized. The elements of protection vary with the different stages of the disease. The continued use of protective apparatus, properly manipulated, not only fulfills the local indication for enforced rest to the joint, but does so with a minimum of confinement, enabling the patient at an early stage of the treatment to move about and get an abundance of pure air, than which no general measure is more important. The knee is practically put to bed while the patient is up and moving about. "In a word, to be master of the situation, and to be ready and able to respond to all indications, separately or at the same time, constitute the problem of the mechanical treatment"* of chronic disease of the knee joint.

201 WEST FIFTY-FOURTH STREET.

Professor Samuel Pozzi, of Paris, met a number of New York and Brooklyn physicians at dinner at Dr. John Byrne's house in Brooklyn on Thursday evening, the 16th inst.

* *Loc. cit.*

A NEW APPARATUS

FOR OBTAINING THE CONTENTS OF THE STOMACH
FOR DIAGNOSTIC PURPOSES.

By M. GROSS, M. D.

THE general and well-known methods for procuring the contents of the stomach are, firstly, *the method of expression*; secondly, *the method by aspiration*.

By the first method the patient is told, after introduction of the stomach tube, to press out—in this way, through the simultaneous contraction of the diaphragm and the abdominal muscles, causing the contents of the stomach to be forced through the tube. This method, introduced by Ewald and Boas, is in truth the most prevalent. But Ewald himself mentions that a small percentage of the patients called upon to press out generally make but short, spasmodic movements of expiration. In such cases we must apply the method of aspiration. By the second method the contents of the stomach are obtained, after introduction of the stomach tube, by aspiration. Nevertheless, it has often been a matter of consideration whether or not by any less annoying and disagreeable method we could gain possession of the contents of the stomach.

Among others, small sponges or olive shaped receptacles attached to silk threads have been allowed to be swallowed, and upon the withdrawal of these the liquid thus obtained been subjected to an examination. These methods give uncertain results, withdrawing too small an amount of fluid to allow us to form a correct and definite opinion of the macroscopical and microscopical appearances and the chemical constituents of the contents of the stomach.

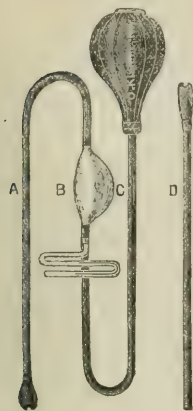
Even if Ewald, Leube, and others regard the introduction of the stomach tube hardly as an annoying and disagreeable procedure, nevertheless we must admit that, in spite of the application of cocaine and a well-practiced hand, the patient must endure, on the introduction of the tube and during its stay in the esophagus, much discomfort and disagreeable sensations. It is not a matter of indifference whether a wide and hard tube causes a sense of suffocation and vomiting, inasmuch as under these circumstances the least movement will produce these disagreeable symptoms. Only he who himself has had the tube introduced can judge of this "pleasant" situation. With the introduction of my stomach tube I have succeeded in reducing these unpleasant symptoms to a minimum.

The principle is as follows: A tube small in caliber and soft in texture (a Nélaton's catheter for *lavage* in children) is swallowed by the patient, and thus the contents of the stomach are obtained by aspiration. The choking and vomiting sensations, on account of the thinness and softness of the tube, are absent.

The apparatus may be divided into three parts—a stomach part, a middle part, and an end piece.

The stomach part (A), the part to be introduced into the stomach, may consist of a long, thin Nélaton catheter with one opening at its proximal extremity, or it may simply possess an olive-shaped end, the latter of which I prefer, inasmuch as it may the more readily be swallowed, and on that account I myself make use of it almost exclusively.

This olive extremity is composed of hard rubber and covered entirely by the rubber tube. The middle piece (B) represents an eccentric glass bulb for the purpose of collecting the stomach contents, and connected with the bulb a manometer for determining the changes of pressure in the tube. The end piece (C) of the tube is made up of a modified Politzer bag, or it may consist simply of a mouth piece (D), in which case the physician himself aspirates.



At the introduction of the tube the olive is pushed back until it reaches the posterior wall of the pharynx and the patient is told to swallow. At the well-known spot where the pharynx is continued into the œsophagus the olive causes in some cases a slight effort of deglutition, and then glides down the œsophagus into the stomach. I have often tried this

myself, and with the tube introduced been able to breathe quietly, speak without effort, and by aspirating at the mouth piece I bring forth the contents of my stomach.

In cases of very pronounced contractures of the muscles at the above-named spot, and the consequent difficult passage of the olive, I withdraw the tube and begin over again with the certainty of a better result.

An objection raised against the aspiration method is the likelihood of the mucous membrane of the stomach becoming hemmed into the opening of the tube; and it is known as a fact that part of the mucous membrane has been torn off. In order to avoid this mishap I never aspirate before the olive has dipped into the contents of the stomach, which I ascertain by blowing into the tube and then hearing a noise such as is produced by the blowing of air through fluid. Furthermore, I aspirate myself, because I can then easily ascertain the moment when the opening of the tube becomes clogged.

In the majority of cases the Politzer bag is used for aspiration; the manometer will indicate by its changes of pressure whether or not some obstruction, such as particles of food or mucous membrane, is present, and thus caution us. Should obstruction occur, I blow into the tube, ask the patient to swallow, or withdraw the tube slightly, when the obstruction will disappear.

In conclusion, let me state that this apparatus* may also be used for inflating the stomach, but only to a certain extent, as the air returns through the cardiac extremity of the stomach on account of the small size of the tube.

This apparatus can likewise be used as a tube for washing out the stomach.

* The experimental work was performed by Mr. Otto Kloppe, New York city. In case of wearing out of the stomach piece the physician himself can apply the tube again by cutting off the tube just behind the olive and drawing back the tube piece that covered the olive; the mechanism of the fastening of the tube will then easily appear.

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FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, NOVEMBER 18, 1893.

THE REPORT OF THE HEALTH OFFICER OF THE PORT
OF NEW YORK FOR THE YEAR 1892.

In this recently published report Dr. Jenkins explains its delay as due to the pressure of official duties, and gives a detailed statement of the condition of the establishment when he was appointed health officer. During the year he inspected 5,383 vessels from foreign ports and 1,952 from domestic ports, for which service the former paid \$24,022.50 and the latter \$3,166. But these were not the only sources of revenue, for fumigation, for which \$8,545 was received, night-boarding, transportation, vaccination, and the medical inspection of immigrants raised the total receipts to \$48,466.47—a sum more than sufficient to meet the expenses of the service and have a balance of some \$1,700.

These figures are mentioned to refute, in the first place, an impression that the health officer of the port of New York receives in salary and perquisites more than the President of the United States, and in the second place to show the heavy tax that is imposed upon the commerce of this city to protect the health of the country. The number of immigrants inspected was 388,186.

There is a table that shows the number of passengers brought by each steamship line and the number of developed cases of small-pox found among the passengers of each line on arrival at this port.

There is an elaborate history of the cholera epidemic among the steamship passengers during 1892. We think Dr. Jenkins is correct in declining all responsibility for the purchase of Fire Island, and in his refusal to transfer people to Camp Low. Both these quarantine establishments were the creations of panic, and their institution was a needless waste of money. If the medical profession has learned anything at all, it has been for several years cognizant of the fact that cholera is not a miasm and that it must be introduced into the system by food or drink. Such being the case, a steamship is an ideal place for the segregation of people that have been exposed to cholera infection, because the food supply and the water supply are under absolute control, disinfection of the inhabited parts of the vessel may be rapidly accomplished, and supervision of the passengers may be constantly carried on by the physician. The best thing the State of New York and the United States can do with Fire Island and Camp Low, respectively, is to dispose of them and thus get rid of them. They are vestiges of that fifteenth-century system that gave origin to the word which we now accept as signifying maritime sanitation, rather than forty days' detention of suspected or exposed persons.

The regulations of the health officer regarding the inspection and handling of suspected or infected persons, either at the port of embarkation, at quarantine, or on shipboard are well considered. The recommendations that are made regarding needed improvements at quarantine should, when carried out, make this station as effective as it is possible for such an establishment to be.

THE TREATMENT OF HEART DISEASE BY THE SCHOTT METHOD.

DR. R. H. BABCOCK publishes in the *Journal of the American Medical Association* for November 11th an interesting paper on the Schott method of treating chronic diseases of the heart by baths and gymnastics, and his paper is the more deserving of serious consideration because he has personally tried this treatment and has experienced great benefit therefrom.

The method has been employed at Bad Nauheim during the past twenty years in the treatment of all forms of chronic heart disease, except aneurysm of the heart or large vessels and advanced general arteriosclerosis. Valvular disease forms no contraindication to its employment, for most striking restoration of compensation has been obtained in cases of the utmost gravity that had resisted all other forms of treatment.

The method consists in the administration of warm baths, either saline or saline and containing a large percentage of carbonic acid, at a temperature varying from 86° to 92° F. The duration of the bath is from five to twenty-five minutes, being short at first and gradually lengthened. The simple saline baths at the higher temperature are first employed, and they are subsequently gradually and cautiously strengthened by the addition of a strong solution of the salts, and the temperature is gradually reduced. The baths are taken once every second day or daily for three days in succession with one day's interval following. After the bath the patient remains undressed and lies down, warmly covered, for at least an hour. The treatment extends over a period of from five to seven weeks.

Another factor in the method is the employment of extremely simple but systematic exercises of the trunk and limbs. A fundamental principle of the gymnastics is that the patient's movements are restricted by another person. The exercises consist of flexion, extension, and rotation movements. A movement should never be immediately repeated, but followed by a short period of repose. It should not be made so rapidly or against such a degree of resistance as to cause acceleration of the pulse or respiration. All movements must be carried out slowly and steadily, without jerkiness. In some cases the patient resists his own movements by calling into play antagonistic muscles.

During the baths there is a slowing of the pulse with increased volume and strength, and irregularity, if any exists, is lessened or disappears. The cardiac contractions are increased in vigor and the cavities better emptied, thus permitting of a diminution in the size of a dilated heart. This marked and beneficial effect on the action of the heart does not disappear

at once, but persists for a considerable time subsequent to the baths. If properly administered, the baths occasion a gradual and perceptible amelioration of the symptoms. During the gymnastics the rate of the pulse falls and the volume and strength are increased.

While Oertel's method is limited to cases of heart disease in which compensation has not been lost, Schott's method is applicable to a greater variety of cases, and, as the treatment can be carried out in this country by artificially prepared baths and the gymnastics, it seems that by careful selection patients subjected to this treatment may be greatly benefited.

MINOR PARAGRAPHS.

A DECLINE IN PATENT MEDICINES IN GREAT BRITAIN.

THE *Chemist and Druggist* gives an instructive comparative study of the popularity of patent medicines, as indicated by the average annual sales of revenue-tax stamps. The law in Great Britain requires a stamp to be affixed to all proprietary remedies, and the sale of these stamps shows the popular demand from year to year. During a period of twenty-seven years, ending in 1887, the average annual increase was \$25,000; during the period of five years ending in 1892 the average annual rise was \$72,000; but in 1892-'93 there was a decided decrease, amounting to nearly \$100,000 in the twelve months ending in March of this year. This falling off represents a failure on the part of the drug-consuming public to buy three millions of packages—bottles or boxes—of medicines having a selling value of \$750,000. The Pharmaceutical Society has in part been responsible for this remarkable change. The society has lately been insisting on the enforcement of a regulation that requires all patent compounds that contain poisonous drugs to bear a poison label. This has had the effect of embarrassing the sales of that particular line of nostrums and of scaring off many consumers. The scare is beneficial, not only because it affects primarily the more deadly of the patented compounds, but also because it engenders distrust, inquiry, and delay in regard to other purchases of substances that are not required to wear the poison label. It tends to throw a veil of suspicion over every department of nostrum-vending, and is for that reason a sort of indirect educator of a suffering public.

CARBOLIC ACID.

DR. L. DERVILLE, of Lille (*Province médicale*), reports success with carbolic acid in the treatment of vegetations on the genital organs. His experience leads him to urge the more general employment of this drug as a cauterant. There seems to be a diversity of opinion in regard to the indiscriminate use of this drug as a domestic remedy. At a recent meeting of the *Société de médecine et de chirurgie pratiques*, at Paris, the consensus of opinion was decidedly against the use of carbolic acid as a household panacea, and the feeling was that, even in the hands of medical men, it was none too safe a remedy. M. Bardet reported the case of a child, three years old, who had been bitten on the finger by a wasp. A compress saturated with the acid had been applied, gangrene had followed, and a finger had had to be amputated. M. Olivier had observed the case of a young man who had discovered a suspicious sore upon the glans penis, and had applied carbolic acid to the spot. A few days afterward gangrene of the prepuce had come on, producing a veritable circumcision.

THE LATE SIR ANDREW CLARK, OF LONDON.

THIS eminent consulting physician, president of the Royal College of Physicians, died at his residence, as we stated last week, on November 6th, from the effects of an apoplectic attack. The attack occurred on the morning of the 19th of October, while he was seeing some patients in his study. He was found to have right hemiplegia with aphasia, and was going on fairly well, although the paralysis still continued, when he got a relapse on November 3d, and succumbed three days afterward. He was never a strong man, but by careful attention to diet and other matters he attained the age of sixty-seven years. An anecdote is told as bearing on this matter. When very young he applied for his first hospital appointment, and would have been unsuccessful had not one of the governors made a strong appeal in his favor, saying, "Give it to him, as it will please the poor chap, and he can not live long." He was for many years the medical attendant of Mr. Gladstone, who must feel his loss acutely. Sir Andrew Clark's reputation was world-wide, and he attained to every distinction that could be conferred.

DEATH IN RECREATION.

THREE deaths from injuries during foot-ball play have recently been reported in this country, one in New Jersey, one in Indiana, and one in Wisconsin. One lad had his neck broken, and another suffered from fracture of the skull. A recent number of the *Lancet* reports a death by hockey, arising from the use of a hard cricket ball. The player who lost his life was struck by the ball in the cardiac region, the ball having been struck with great force and at short range. The *Lancet* states that this is the first hockey fatality that has been recorded since the adoption of the hard ball, and it advises that the rules of the game be so framed that the softer ball shall be alone admissible. The rules of foot-ball in England have been amended with advantage under the insistence of the *Lancet* and some other journals, but these advocates for humane play are not yet satisfied. They continue to call for more humane rulings.

THE NEW YORK SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

THE annual statement of this excellently managed society has just been issued, and from it we learn that there are now a hundred and forty-three members. During the year the society has extended aid to eleven widows and three children of deceased members. The admirable financial management has made a net increase of almost seven thousand dollars in the capital of the society, the total assets being a few hundred dollars short of a hundred and ninety thousand dollars. What a tribute these figures are to the good judgment and energy of the founders of an organization that is about to enter upon its fifty-second year! It is a matter of surprise that a society that offers so much to its members does not include in its membership the name of every reputable physician in New York. From a financial standpoint no better investment could be made than by joining it, and from a philanthropic standpoint the members of the medical profession should do all that lies in their power to relieve the destitute widows and orphans of deceased members of their guild.

AN UNSUCCESSFUL ATTEMPT AT DISCIPLINE.

INSINUATIONS and covert accusations against prominent members of the medical profession are too common. It is true

that they get little if any attention from men of weight in the profession, but sometimes they do more than tickle the ill-nature of the small fry—they occasionally meet with such credence as to lead to proceedings in a medical society. An account of a case in point we reprint in another column from a Washington newspaper. The gentleman against whom the inquiry was directed in this instance, Dr. William A. Hammond, of Washington, seems to have undergone investigation unscathed, as was to have been expected, and it is to be hoped that, for a time at least, persons who delight in circulating damaging rumors will be somewhat less ready with their tongues.

POST-VACCINAL ERUPTIONS.

At the present time, when such great numbers of persons are being vaccinated, it is well to know the cause of certain symptoms coming on after vaccination. When severe inflammatory symptoms with pustular eruptions on the arm and over the body have appeared after vaccination, an explanation of the condition has been found in the fact that pyogenic microbes have been discovered in many specimens of vaccine virus. M. H. Comte, in the *Revue générale de clinique et de thérapeutique* for October 18th, has made an extended study of these conditions and of their probable cause, and has been able to substantiate this statement.

CÆCAL HERNIA.

M. FEUERER, in the same journal, describes two cases of infantile eclampsia caused by cæcal hernia. In one, a fatal case, the child, six months of age, had died in convulsions. It was found at the autopsy that the appendix had become strangulated in the inguinal canal. In the other case, in which the symptoms of hernia of the cæcum had been present at the same time with the eclampsia, a prompt operation for radical cure had saved the child.

BACTERIA IN SUGAR OF MILK.

DR. A. NAUMANN, of Berlin, has found that the milk sugar of the shops is frequently contaminated with micro-organisms having their source in the milk used in the production of the sugar. He has found that sterilized milk is coagulated after the addition of sugar of this nature.

A HOME FOR EPILEPTICS IN BROOKLYN.

AN effort is on foot in Brooklyn to establish a non-sectarian home for epileptic patients. A suitable lot has already been secured, and it is desired to raise a building fund of not less than \$10,000.

ITEMS, ETC.

A New Maternity Hospital at Nos. 523 to 537 East Eighty-sixth Street was dedicated by His Grace Archbishop Corrigan on last Sunday. The new east wing that has just been erected is seventy-five feet wide, a hundred and thirty-eight feet long, and five stories high. It contains a hundred and fifty beds, and is entirely under the medical supervision of Dr. T. J. McGillicuddy, assisted by a corps of nurses specially trained for obstetrical work. It is intended to build the west wing within a few years.

Medical Director Kidder, of the Navy.—Dr. Benjamin H. Kidder, recently a medical inspector in the navy, has received his promotion to the grade of medical director.

The City (Charity) Hospital.—Dr. William K. Otis has been appointed to fill the vacancy on the visiting staff caused by Dr. Robert W. Taylor's resignation.

Change of Address.—Dr. M. Gross, to No. 1042 Lexington Avenue.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 5 to November 11, 1893:*

STEPHENSON, WILLIAM, Captain and Assistant Surgeon, is, by direction of the Secretary of War, granted leave of absence for four months.

TAYLOR, BLAIR D., Major and Surgeon, is changed from the station, old post of Fort Bliss, Texas, to the new post of that name, and he will report in person to the commanding officer of the latter-named post for duty.

By direction of the Secretary of War, the appointments of QUINTON, WILLIAM W.; BRATTON, THOMAS S.; HOWARD, DEANE C.; PORTER, ALEXANDER S., and WILSON, WILLIAM H., to be assistant surgeons, with the rank of first lieutenants, to rank from October 26, 1893, are announced. They will report in person without delay to the president of the Army Medical School in this city for the course of instruction prescribed in General Orders No. 78, A. G. O., September 28, 1893.

Promotions.

COMEGYS, EDWARD T., Captain and Assistant Surgeon, to be surgeon with the rank of major, October 26, 1893.

GLENNAM, JAMES D., First Lieutenant and Assistant Surgeon, to be assistant surgeon with the rank of captain, October 29, 1893.

BRADLEY, ALFRED E., First Lieutenant and Assistant Surgeon, to be assistant surgeon with the rank of captain, October 29, 1893.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 11, 1893:*

MARTIN, WILLIAM, Surgeon. Ordered before the Retiring Board.

BLACKWOOD, N. J., Passed Assistant Surgeon. Detached from the Navy Yard, New York, and ordered to the Norfolk Hospital.

CRAIG, T. C., Passed Assistant Surgeon. Ordered to the Navy Yard, New York.

STONE, E. P., Passed Assistant Surgeon. Detached from the Naval Hospital, Chelsea, and ordered to the Marine Rendezvous, Boston, Mass.

WILSON, G. B., Passed Assistant Surgeon. Detached from the Marine Rendezvous, Boston, and ordered to the Naval Hospital, Chelsea, Mass.

KIDDER, B. H., Medical Inspector. Promoted to the grade of medical director.

GARDNER, JAMES E., Passed Assistant Surgeon. Promoted to the grade of surgeon.

CRAWFORD, MILLARD H., Passed Assistant Surgeon. Promoted to the grade of surgeon.

Society Meetings for the Coming Week:

MONDAY, November 20th: New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, November 21st: New York Academy of Medicine (Section in General Medicine); New York Obstetrical So-

cety (private); Medical Society of the County of Kings, N. Y.; Ogdensburg, N. Y., Medical Association; Medical Society of the County of Westchester, N. Y.; Baltimore Academy of Medicine.

WEDNESDAY, November 22d: New York Pathological Society; New York Surgical Society; Metropolitan Medical Society, New York (private); American Microscopical Society of the City of New York; Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society.

THURSDAY, November 23d: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

FRIDAY, November 24th: Yorkville Medical Association, New York (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, November 25th: New York Medical and Surgical Society (private).

Proceedings of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of October 25, 1893.

Report of a Year's Work in Minor Gynecological Surgery in the Kensington Hospital for Women.—Dr. CHARLES P. NOBLE read a paper with this title. He had been led to make this report of his last year's work in minor gynecological surgery by the fact that very little at this time was written about this subject. Whether this was because gynecologists looked upon these matters as having been settled, or because their attention was more largely occupied with the problems of abdominal surgery, was an open question. He believed it was the latter, as even cursory reading of such articles as had appeared during the past few years showed a great diversity of opinion about the subject under discussion. In his judgment, there was no class of work of more importance in the relief of suffering than minor gynecological surgery, and this estimate of its value, under proper conditions, became more emphatic with increasing experience. He hoped to point out in the comments upon the work reported wherein some had failed to achieve the good results which they had expected, and where others had done positive harm by their work in this field.

There had been one hundred and forty-five operations in minor surgical gynecology performed in the hospital during the past year without a death. The operations had been divided as follows:

Perineorrhaphy and trachelorrhaphy.....	24
Dilatation and curetting.....	28
Perineorrhaphy.....	20
Trachelorrhaphy.....	9
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General operations.....	37

It would be seen that in twenty-four cases the cervix and perineum had both been sutured, that in twenty cases the cervix alone had been sutured. These facts were of practical interest as indicating that, as a rule, when the cervix was torn the perineum was also torn, while the reverse did not hold good. When the disproportion between the head and the cervix was sufficient to cause laceration of the cervix, as a rule, the same accident happened to the perineum; at the same

time, the cervix might escape and the perinæum be torn, either because of its faulty structure or because of mismanagement of the second stage of labor.

Trachelorrhaphy.—This operation had been performed twenty-six times; twice alone, and twenty-four times together with the restoration of the perinæum. The author's estimate of the value of this operation remained unchanged. When the cervix was torn, the womb was enlarged, the lips of the cervix were everted and eroded, with catarrh of the cervix and of the corpus, and especially when, in addition, menorrhagia and metrorrhagia were present, there was nothing which would bring about the cure of the patient so rapidly, thoroughly, and satisfactorily as Emmet's operation on the cervix. It was true that by prolonged treatment of a general character, and with local treatment to reduce pelvic congestion, very many women with laceration of the cervix could be made reasonably well; but this was accomplished only after tedious effort, and then the condition of the woman was not so good as it would have been had she submitted to operation. When properly done, and with proper indications, the operation was practically without danger, and yielded very definite and positive good results. Much harm, however, had been done by operating upon the cervix in improper cases; and also, many patients had not been cured because the work had been poorly done. It was hardly rational to expect to cure a woman having diseased uterine appendages by sewing up her cervix; yet this had been done very many times, with the result that the tubal disease had been made worse, a peritonitis having immediately ensued as a direct consequence of the operation, or resulted later through aggravation of the tubal disease. It should be laid down as a fixed law that the cervix should not be sutured unless the uterine appendages were healthy.

It was his practice invariably to dilate and curette the uterus before performing a trachelorrhaphy, and catarrh of the cervix and corpus, existing as a complication, were thus removed. The cavity of the uterus was thoroughly washed out after the curetting, and thus the field of operation was made more thoroughly aseptic, and the possibility of infection by septic discharges from the endometrium greatly lessened. The principles of asepsis were as rigidly maintained as when doing abdominal surgery. The vagina was thoroughly scrubbed with soap and water after the patient was anesthetized; it was then thoroughly washed with clean water, and afterward with bichloride-of-mercury solution. This preparation of the field of operation preceded all operations upon the utero-vaginal canal.

In performing trachelorrhaphy the writer had the patient in the lithotomy posture, and removed the diseased and cicatricial tissue usually with the knife, at times with scissors, being careful to provide for an ample cervical canal; the rent was sutured with full-curved needles, using catgut as a suturing material. Of the very many cervix operations that he had performed, he had yet to see a case in which primary union had not been obtained. All suturing materials—silver wire, silkworm-gut, silk, and catgut—had been employed, and the results obtained had been the same; hence, as it was usually necessary to operate on the perinæum at the same sitting, he employed catgut, because this suture material was absorbable, and the stitches did not have to be taken out.

In cases in which the cervix was thoroughly diseased, either by cicatricial tissue or by cystic degeneration, he believed it was better to perform Schröder's operation rather than trachelorrhaphy; in the few cases in which he had performed Schröder's operation from this indication the results had been very satisfactory.

Dilatation and Curetting.—During the past year there had been twenty-eight such operations. This operation had always

been done for well-marked endometritis, especially if this was accompanied by marked uterine hemorrhage, also for certain cases of dysmenorrhœa. When the pain of menstruation came on with or after the onset of the flow, and was distinctly intermittent and cramp-like in character, especially if clots were passed from time to time—the passage of the clot being followed by relief of the pain—dilatation and curetting of the uterus had given excellent results. The trouble lay in the selection of the cases. If every woman who suffered pain during menstruation should have her cervix dilated, undoubtedly more harm than good would be done, because in most cases the difficulty was not a narrow cervical canal. It was only in those cases where narrowness of the cervical canal was the cause of the trouble that dilatation would be of service. At times, as a result of the narrow cervical canal and the consequent interference with the discharge both of the menstrual and of the intermenstrual secretions, endometritis had resulted, for the relief of which curetting as well as dilatation was necessary. If the cases were well studied and the dilator and curette only employed in such cases of dysmenorrhœa as had been referred to, the results obtained would be very satisfactory. The cause of the narrow cervical canal of most importance was a lack of development of the uterus, especially of the *portio vaginalis*.

Much had been written within the last few years of the direful effects of the use of the dilator and curette. The attack upon this operation had been led by Dr. Price, and all manner of evil consequences had been ascribed to it. Dr. Price had gone so far as to say that the use of these instruments in the hands of others was the reason why he was kept busy doing abdominal surgery. The author could not believe that this was so, because it was so directly at variance with his own experience. He had used the dilator and curette literally hundreds of times, and had they been the instruments of evil described by Dr. Price he should have had the evidence of it in his own work; on the contrary, only good had resulted, the exceptions being so rare as to be distinctly remembered, and the reason for such ill results had been distinctly apparent. They had been cases (some three in number) in which, although it had been recognized that the uterine appendages were diseased, it seemed best to use the curette to arrest uterine hemorrhage. In these patients the tubal disease had been made temporarily worse, yet none of them had died, and their prospects of cure by means of the radical removal of the tubal disease had not been lessened. It was easy to understand that much harm could be done with the dilator and curette if they were used in the presence of tubo-ovarian disease, especially if the appendages contained pus. It would have been very easy, under these conditions, to cause a leakage of pus into the peritoneal cavity and peritonitis. Both on this account and because it was irrational to expect to cure such a patient by the use of the dilator and curette, in his judgment, under those conditions, these instruments should not be employed, or only under exceptional circumstances. He believed that the ill consequences attributed to dilatation and curetting had been due to this error in the selection of cases, and that in the many cases referred to by Dr. Price, in which the author believed that serious disease of the appendages had been caused by the use of the dilator and curette, in reality the uterine appendages had been diseased before dilatation and curetting had been done, and that this disease had simply pursued the usual course, or perhaps had been aggravated by the treatment adopted. Under proper aseptic methods, dilatation and curetting of the uterus, when the tubes and ovaries were healthy, was a harmless procedure on the one hand, and upon the other hand was one capable of doing great good in the special class of cases of dysmenorrhœa referred to, and whenever endometritis existed.

The author's opinion concerning the safety with which the uterus could be dilated and curetted under the conditions laid down had been strengthened by the work of certain New York surgeons, especially Dr. Polk, who had employed dilatation and curetting of the uterus in a large series of cases in which the appendages had been diseased, and this, he maintained, not only without harm, but with benefit, especially in cases of catarrhal salpingitis. While Dr. Polk's practice and experience had not induced the writer to extend the indications for this operation in his work, yet they bore heavily against the argument that dilatation and curetting were so potent for evil.

Perineorrhaphy.—There had been forty-four cases of perineorrhaphy during the year. Emmet's method had been followed, and the results obtained had been most gratifying. Primary union had been obtained in forty-two patients; in two cases infection and suppuration had prevented union. Emmet's operation upon the perineum was a most admirable addition to surgery, and by its results had been obtained, where the injury was extensive, involving the levator ani muscles, which could not be obtained by the methods usually employed. He believed that this operation was the chief work that Dr. Emmet had given to the profession, and of itself would be enough to give him lasting fame. He had been prepared to accept Emmet's operation by his training in an obstetrical hospital, where careful study of many lacerations of the perineum during labor demonstrated that these lacerations never were median, except at the posterior commissure of the vulva. At the plane of the hymen, which corresponded to the deep perineal fascia, the laceration always became lateral: it extended up one or both sulci of the vagina, and, aside from the skin, mucous membrane, and connective tissue, involved a laceration of the perineal fasciæ and the transversus perinei and levator ani muscles. A rational operation should have had for its object the bringing together of these sundered structures. The denudation must have involved the torn commissure of the vulva and the torn sulci of the vagina. The credit of recognizing this fact was due to Emmet.

The originators of the old median operations, the best of which was Hegar's, had not recognized these facts, and indeed they had based their operations upon the old erroneous teaching concerning the perineal body. The aim of all such operations had been to build a buttress of tissue between the vagina and the rectum, with the idea that it, because of its wedge shape, would act as a support to the pelvic organs. It had not been recognized that the support of the pelvic organs depended upon the integrity of the levator ani muscle and the pelvic fasciæ, and that the object of the operation, when these structures were torn, was to restore them as nearly as possible to their original condition.

In performing the operation the author had usually denuded higher up the sulci than Dr. Emmet did, and had taken care to secure a small introitus by carefully denuding and suturing the torn posterior commissure of the vulva. Catgut sutures had been employed high up in the sulci, and silk sutures through the torn ends of the levator muscle and for the remaining sutures. The results obtained from this operation were more certain and satisfactory than from any other in gynecology. When a woman had suffered from severe injury of the levator ani muscle and pelvic fasciæ, she had all the symptoms of a hernia; she felt as though the pelvic contents were dropping out. To restore the pelvic floor in such a case to its normal condition was to make the woman a new creature.

Procidentia.—There had been ten operations for procidentia, either partial or complete. The method employed in operating for procidentia, excepting in one case, had been to perform first a high amputation of the cervix. The vagina was

cut loose from the cervix, the bladder being pushed off in front and the peritonæum behind. The lateral attachments of the cervix were ligated and cut away, and then about an inch of the cervix was amputated; the cut vagina was then stitched to the cervix and the mucous membrane of the vagina to the cervical endometrium, in this way covering the stump of the cervix with mucous membrane. Next anterior colporrhaphy was performed. Stoltz's method was used when there was much cystocele, otherwise the ordinary oval denudation. And, finally, Emmet's perineorrhaphy was done, the denudation being made as extensive as possible, the object being not to restore the parts strictly to their normal position, but, in addition to this, to make the vagina and the introitus as small as possible.

The author had used this method of operating for four years, and his experience was that by it fully ninety-five per cent. of cases of procidentia could be permanently cured. He knew of only one case in which it had been a complete failure.

Procidentia of the uterus, almost without exception, was due to laceration of the pelvic floor, involving the pelvic fasciæ and the levator ani. As a consequence of this injury the pelvic viscera were not properly supported, and procetocele, cystocele, and prolapse of the uterus ensued. This result was brought about more rapidly in women obliged to do laborious work, and was favored also if for any reason the womb was enlarged and retroverted. The exceptions to this rule were extremely rare; he had seen but one himself. This had been a case of complete procidentia in a nulliparous woman. She had been obliged to do laborious work involving much lifting; her womb doubtless had become retroverted, and as she naturally had lax tissues, the intra-abdominal pressure had forced down the uterus, distended the perineum, and turned the vagina inside out. As illustrating the nature of the case, she had been completely cured by the use of tampons and the pessary. It was important to insist upon the curability of procidentia, because the reverse of this teaching had been advanced of late, and it had been urged as a reason for performing hysterectomy for procidentia. In his judgment, this procedure was illogical unless the uterus contained a tumor or was of great size. It might be advisable also in those rare cases of long-standing procidentia and procetocele, in which the tissues of the pelvic floor had become atrophied from long-continued overdistention, which prevented the restoration of the pelvic floor.

The philosophy of the method of operating for procidentia which had been advocated was clear. By amputating the cervix the size and weight of the uterus were decreased; and a further gain was made by the removal of the cervix, as this, when present, favored the prolapse of the uterus by acting as a guide down the vaginal canal, being deflected forward as the uterus descended by the posterior wall of the vagina. By means of the anterior colporrhaphy the slack of the bladder was taken up and the anterior vaginal wall became a straight line from the pubic arch to the cervix, as it should be. And, finally, the operation upon the perineum restored the integrity of the pelvic floor and insured a permanent cure by affording an adequate support to the pelvic viscera.

General Operations.—The thirty-seven general operations had consisted of the removal of polypi, the excision of papillomatous about the genitalia, scraping operations for cancer in cases in which the disease was too advanced for a radical operation, the closure of two vesico-vaginal fistulae, excision of the mammary gland, etc. As the author had no suggestions to offer in the performance of these operations that differed from the accepted teachings, it was unnecessary to discuss this subject.

General Considerations.—Success in minor surgical gynecology, and especially in plastic work, depended upon a thor-

ough gynecological training, and especially upon a knowledge of the anatomical side of the pathological conditions involved, upon the faithful employment of aseptic methods, and especially upon careful work in suturing. Thorough preparation of the field of operation by careful scrubbing with soap and water and plentiful douching with plain boiled water, followed by bichloride-of-mercury solution, were just as important in this class of work as in any other. With an aseptic field, with aseptic sutures and instruments, and with aseptic hands, primary union should be almost invariably obtained. In his entire experience in operating upon the utero-vaginal canal he could recall only three cases in which primary union had not been obtained, and in only one or two more had infection along the sutures resulted in the formation of pus; and in these cases primary union had not been prevented.

The suturing material employed in this class of work was somewhat a matter of indifference, as a good operator could obtain perfect results with any of the recognized suture materials, provided it was aseptic. The author had long given up silver wire because it was troublesome to use and possessed no real advantage for this work. Silk-worm-gut was a most excellent material, but was stiff, and therefore the stitches were more painful to remove than silk stitches; for this reason, unless there was good cause to fear infection, he did not employ it. In complete lacerations of the perineum into the bowel it should be used in preference to silk. Properly prepared catgut had given him complete satisfaction. This he thought was because it had been used only when no tension was to be feared. In the cervix it answered perfectly; also for the upper sutures in the perineum. Wherever tension was expected silk had been employed, and answered every expectation. He should have hesitated to use catgut for the lower important sutures in performing perineorrhaphy, because straining at stool or coughing on the third or fourth day, when the catgut sutures had become weakened, might have caused the wound to burst open. There was little difficulty in removing four or five silk sutures from each sulcus of the vagina; and the advantage that the silk would sustain the straining at stool or coughing more than compensated for the trifling discomfort of removing these sutures.

In placing sutures, the operator should always bear in mind what he wished to accomplish with the suture; if he desired to make surfaces unite the one to the other, the suture must be placed so that when tied it formed a circle, or nearly a circle. In this way the surfaces were brought together smoothly, and were held together. Superficial sutures placed parallel to the surfaces which it was desired to unite acted as puckering strings, threw these surfaces into folds, and defeated the object aimed at. This apparently simple matter made all the difference between success and failure in plastic work.

The Treatment of Acute Pneumonia with Ice and Supporting Measures.—Dr. THOMAS J. MAYS read a paper with this title. Acute pneumonia, he said, was a disease which we all well recognized. Its symptoms and physical signs, its course and duration, were constant and characteristic; yet, strange to say, its treatment was as variable and vacillating as its death-roll was long and appalling. In the city of Philadelphia alone fifteen hundred lives were annually sacrificed to this disease. Was this frightful mortality inevitable, or was there a way to escape it? He believed that it could be materially lessened, but before this could be done we must realize the shortcomings and the mischievous tendencies of professional thought on this subject at the present day. He believed that the want of uniformity in the therapeutics of this disease was partly traceable to the prevailing but mistaken theory that pneumonia, like measles and small-pox, was a self-limited disease, and therefore

beyond the touch of successful active medication. Then, again, the general skepticism of this age had invaded the field of therapeutics and had cast a gloom of doubt on the remedial effects of the long-honored articles of our materia medica. Both of these tendencies in connection with the fact, which had been shown over and over again, that the practical results of the let-alone treatment of pneumonia were superior to those which were obtained when the disease received the active routine treatment of days gone by, had brought the therapeutic art into undeserved discredit, and had sown broadcast a belief that the less active the treatment to which pneumonia was subjected, the better it was for the patient. In accordance with this view, the disease pursued its natural course in spite of any treatment, and all that could be done was to stand by and watch and treat any incidental danger which might develop.

What ground was there, then, for believing that the pneumonic process was self-limited, and that the therapeutic art was powerless in making a local impression on it? So far as the author could see, there was no more reason for regarding pneumonia as self-limited than there was for considering any other ordinary acute disease in the same light. All diseases of this kind were limited in duration, but there was no inherent limitation, in the same sense as there was in small-pox or measles. Let us say pneumonia suddenly attacked a single lobe of a lung, and in the course of three or four days it suddenly ended in crisis, and every vestige of the disease disappeared. Its sudden onset and termination in many instances led us to infer that pneumonia was due to the absorption and explosion of a specific poison, which exhausted its energy in a few days, and to see an analogy between its behavior and that of small-pox. On the other hand, let us suppose another case of pneumonia involving the same lobe of the lung. In about three days the temperature suddenly dropped to within a degree of the normal line, and a favorable termination was anxiously looked for, but, instead of this, the temperature rose higher, and on physical examination it was found that the whole of the adjoining lobe was implicated in the process. A similar succession of events might take place in case another lobe or part of a lobe became involved. These phenomena were familiar to every practitioner, and yet could any one say that this was definite proof of the self-limitation of pneumonia? Had any one ever heard of small-pox or measles attacking the body by piecemeal, first invading one area, then another, and so on? Was it not more probable that the duration of the pneumonic process was chiefly governed by the length of time which it naturally took for the fibrinous exudation to undergo fatty degeneration? and that when the fibrinous deposit occurred successively in different lung areas the disease would be more protracted on this account than if it confined itself to the area which became primarily involved?

Moreover, it was the author's firm conviction that the prevailing impression that the pneumonic process could not be controlled or restrained by means of active medication rested on an equally insecure foundation. He was not rash enough, however, to assume that any form of treatment could be devised which would always insure against death from pneumonia, but from recent experience he believed that a mortality of twenty per cent., which was the usual death rate, was too high, and that this might be materially reduced. He also firmly believed that this reduction in the mortality could not be brought about exclusively through internal medication, feeding, or stimulation, valuable as these measures were. The profession fully realized the vital importance of sustaining the strength of the patient throughout this disease, and practically this part of the treatment was carried out with very desirable results. Far above the efficacy of all these measures, however, stood

ice, or ice-cold water—the local application of which had the undoubted power of subduing and of circumventing the inflammatory process in the lung.

He based this favorable opinion on the results which were brought out in his collective report on Ice in the Treatment of Acute Pneumonia, which was published in the *Medical News* for June 24, 1893. This paper consisted of the condensed histories of fifty cases which were treated locally with ice or cold applications, and which were reported to him by professional friends, or were collected from the literature on the subject, or came under his personal observation. Out of the entire number of patients, two had died, making a death-rate of four per cent. Additionally he referred to one hundred and six other cases of pneumonia treated in the same way by Dr. Fieandt, a physician of Finland, who had a mortality only of 2.82 per cent.—giving a death-rate among all of these cases of 3.2 per cent. Moreover, since the appearance of his paper he had succeeded in securing a number of other reports of cases thus treated, which continued to maintain the favorable impression made by the ice treatment in the first report, and which he hoped to include in a future contribution on this interesting problem.

Aside from the fact that both of the patients who died among those reported in his list had suffered from probably incurable diseases when they were smitten with pneumonia, and were, perhaps, on this account not the most impartial test for any new remedy, it was quite evident that the total showing was still better than appeared on the surface. Great weight must, he thought, be laid on the fact that these cases emanated from fourteen independent observers, half of which number report only one case each. This excluded largely the existence of a personal factor—an attribute and a power which grew out of accumulated knowledge and experience and gave its possessor a certain advantage over those less equipped in this direction, and went far to demonstrate that the curative effects of ice applications did not depend on any very special artistic skill of the medical attendant.

The author often asked whether ice was as efficacious in catarrhal as it was in croupous pneumonia. On theoretical grounds one would be led to believe that it was of greater service in the latter than in the former variety, because the whole inflammatory process was more ephemeral and entailed less organic change on the lungs in that form. While his first cases in which the ice was used had been exclusively those of the croupous variety, his later experience had taught him that this measure had a similar beneficial effect in catarrhal pneumonia, provided it was pursuing an acute course. This was fully demonstrated by a number of the cases contained in his report, notably by some of the cases which were treated by Dr. Lees, and also by the one reported by Dr. Franklin. Indeed, he believed it was impossible sometimes to discriminate between croupous and catarrhal pneumonia during life when the latter pursued an acute course, and especially when it took place in infants or small children.

In what special manner should the ice be employed? For want of a better method, the front, side, and back of the affected area were surrounded with rubber bags filled with ice and wrapped in towels. The number of bags which were needed depended on the size of the area which was involved. If this was small, only one or two bags were necessary, but in cases where an extensive area was affected he had applied as many as six and seven, which sufficed to cover the whole chest. They were allowed to remain until the temperature became nearly normal. Very often it was found that the application of the ice to the affected spot was immediately followed by a marked lowering of the temperature and improvement in the physical signs in the part. In a very short time, and perhaps

in the midst of this amelioration, the temperature rose again, and the patient felt less comfortable than before. Further examination showed that the disease had invaded a new and probably an adjoining territory. Removal of the ice bags to the fresh spot, or the application of new ones, would again be followed by improvement. This creeping feature of pneumonia must always be borne in mind and followed up until it ceased.

One difficulty in the use of the ice bags was to keep them constantly applied to the chest in restless patients, and this had led him to look into the feasibility of making a hollow tin jacket, which adapted itself to the chest, and through which a constant current of ice-cold water might be passed. Such an apparatus the author had in contemplation, and when it was perfected he thought it would add much to the effectiveness of the application and would also be a greater convenience to the patient.

The subject of diet demanded the most serious consideration of the practitioner, whose aim should be to administer food of the most nourishing character and in the most concentrated and digestible form. In other words, he should strive to give the stomach as little work to do as possible, and at the same time maintain the nutrition of the patient at the highest point. For this reason two ounces of fresh beef juice pressed out of round steak should be given alternately every hour and a half or two hours, with eight tablespoonfuls of milk, one of whiskey, and one of limewater. Beef powder and nutrient wine of beef peptone might also be given.

So far as internal medication was concerned, he would say that strychnine stood first in this respect and should be given unstintedly. Adults should receive a twenty-fifth or a twentieth of a grain twice a day hypodermically, and a twenty-fifth of a grain by the mouth every four hours, until there was a manifestation of toxic symptoms, such as an increase of the reflexes, especially of the lower extremities. A quarter of a grain of morphia was to be given subcutaneously in the evening to produce sleep. An ice bag to the head would also help to allay cerebral excitability and restore quiet. Evacuation of the bowels should be secured by the administration of small doses of calomel and sodium bicarbonate.

When cyanosis and difficult respiration became very marked, inhalation of oxygen must be employed. The patient might inhale the gas out of an ordinary-sized rubber gas bag through a suitable mouth-piece which was attached to it. The amount of oxygen which must be given in a case was entirely dependent on the severity of the symptoms, but it was a good rule to push it until the lips and finger nails assumed a healthier appearance and the breathing became less oppressed, and to give it as often as it was necessary to suppress these symptoms.

Now, when we compared the results of the ice treatment of pneumonia with those which were obtained from the prevailing treatment, it would show very much in favor of the former mode of treatment. Thus the mortality of one thousand and twelve cases in the Montreal General Hospital was twenty per cent., while in the Charity Hospital of New Orleans it was 20.01 per cent. From 1822 to 1889 the mortality from pneumonia in the Massachusetts General Hospital had been twenty-five per cent. Dr. Hartshorne estimated that the death-rate from this disease in the Pennsylvania Hospital, this city, had been about thirty-one per cent. during the years 1884, 1885, and 1886. A comparison of this mortality rate with that which had been derived from the treatment advocated in the present paper showed that the latter produced results which were at least seventy-five per cent. better than those which were obtained when the cold applications were not employed. He knew that the number of his cases was rather small to draw

such promising deductions, but from his experience since they had been published he was encouraged to believe that this form of treatment would not only maintain its excellent reputation, but grow in increased favor on closer acquaintance.

Reports on the Progress of Medicine.

OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, M. D.

Bacteriological and Clinical Observations in Catarrhal Conjunctivitis.—Morax (*Ann. d'oc.*, December, 1892) concludes from his observations that the conjunctival secretion in the epidemic or sporadic catarrhal conjunctivitis so common in Paris always contains a bacillus identical with that described by Koch and Kartulis in the catarrhal conjunctivitis of Egypt, and by Weeks in the catarrhal conjunctivitis of Philadelphia. It is therefore justifiable to class these affections together, and to differentiate between the common catarrh of the conjunctiva which accompanies certain ocular affections and the specific catarrh, contagious conjunctivitis, which contains the above-mentioned bacillus. This morbid product may assume various clinical varieties, which may be recognized by the muco-purulent character of the secretion and by its tendency to contagion, as well as by the bacteriological examination.

The Nature of Trachoma.—Mutermilch (*Ann. d'oc.*, January, 1893) believes that the association of bacteriological investigations with clinical facts, which often belie the contagious character of trachoma, permits us to conclude that we have not yet succeeded in discovering the microbe of trachoma, for the simple reason that the latter does not exist. Owing to the presence of adenoid tissue in the conjunctiva, the regeneration of the epithelium occurs very rapidly, and this easy reproduction accounts for the powers of resistance of the normal conjunctival epithelium to the effects of pernicious agents. The change of character in the epithelium of a trachomatous conjunctiva means that the anatomical equilibrium between the epithelium and its base has been regained, and that the tissue has again become as resisting as it was before the disease began. If the resistance of the normal conjunctival epithelium is due to the vitality of its anatomical elements—that is, to its capacity of reproducing itself very rapidly—if its reason is purely physiological, after the condition of trachoma has ended, this resistance has become passive, due to causes of a purely mechanical nature. From the moment the conjunctival epithelium has assumed the epidermoid type the conjunctiva passes into the second characteristic phase, which has been described as trachoma, or granular ophthalmia. After each inflammatory exacerbation the adenoid tissue becomes richer in connective tissue fibers, the regenerated epithelium becomes more and more epidermoid in character, its superficial cells receive less and less nutrition, they gradually desiccate, and finally become epidermoid, and in this way the trachoma ends.

Influence of the Orbicularis Muscle on the Refraction of the Eye.—Février (*Ann. d'oc.*, February, 1893) differentiates between primary astigmatism which is manifest when the eyelids are widely opened, and secondary astigmatism which is produced when the eyelids are contracted. The direction of the principal meridians of primary astigmatism often remains when the lids are contracted, but this persistence is generally produced in subjects in whom the meridian of shortest curvature occupies a vertical position. In the great majority of

cases the principal meridians, which are more or less oblique, become changed; the meridian of shortest curvature becomes vertical, while the second principal meridian becomes horizontal. In certain rare cases the astigmatism disappears when the orbicularis is contracted. From these considerations Février draws the following conclusions: 1. The palpebral fasciculi of the orbicular muscle exert by their contraction a definite pressure on the whole eyeball. This contraction may finally provoke modifications in the shape of the eye, especially during the period of its development—that is, in childhood. This modification of form will vary according to the form and insertion of the palpebral muscles with reference to the eyeball, very marked in myopes and much less so in hypermetropes. Moreover, the simple tonicity of the muscular fibers may play its part in effecting such change of shape. 2. This pressure produces a secondary effect in shortening the antero-posterior diameter. 3. This pressure, acting especially on the superior and inferior parts of the cornea, produces an exaggeration of curvature of the vertical meridian, which causes an astigmatism in which the principal meridians will be vertical and horizontal, or nearly so, and which, in the majority of cases, will take the place of a pre-existing astigmatism in which the principal meridians were oblique. 4. This pressure explains why astigmatic and myopic patients so often wink the eyelids.

Treatment of Hydatid Cysts of the Orbit.—Terson (*Ann. d'oc.*, March, 1893) advises the following method of treatment: 1. Make a sufficiently large puncture to empty the contents of the cyst, followed by a prolonged injection of aseptic distilled water, in order to facilitate the detachment of the hydatid vesicle and its removal by means of forceps. 2. If these means fail, induce suppuration in the cyst.

The Treatment of Hæmorrhagic Glaucoma.—De Bourgon (*Ann. d'oc.*, March, 1893) draws the following conclusions from his observations: 1. True hæmorrhagic glaucoma presents a grave local prognosis, proved by the great number of enucleations. 2. The different operations proposed for the treatment of the other forms of glaucoma, being useless and painful, with the exception of sclerotomy, ought to be absolutely rejected. 3. The general prognosis being almost as grave as the local, the attention of the physician to the general condition of the patient should be as close and accurate as to the condition of the eye, on account of the possible existence of vascular lesions elsewhere. 4. In the hæmorrhagic period the congestion of the eyeball should be counteracted and the general condition of the patient carefully attended to. In the period of confirmed glaucoma the treatment should always at first be medical—such as eserine, heat, and subcutaneous injections of ergotine. If the acute symptoms do not diminish in intensity, the only permissible operation is sclerotomy, simple or equatorial. Iridectomy should never be performed. If the intra-ocular tension is not appreciably lowered by these means, enucleation should be done at once.

The Diagnostic Value of the Loss of the Pupillary Light-reaction, with a Note on the Oculo-facial Muscular Group.—Turner (*Roy. Lond. Ophth. Hosp. Rep.*, xiii, 3) advises that, in testing cases for light-reaction, the light ought not to be more intense than the eye is usually accustomed to, and hence daylight is better than that reflected from a mirror. All errors associated with accommodation and convergence must be carefully eliminated. In testing the consensual reflex, it is important that the eye under observation should be partially protected, and not exposed to the full influence of the light. Turner considers that the Argyll-Robertson pupil, existing by itself on one or both sides, although not diagnostic, is highly suspicious of the presence of an early progressive, degenerative lesion in the upper portion of the central nervous apparatus, and its

presence should suggest the possibility of other symptoms which may require careful investigation—such as the state of the kneejerks, the condition of the optic nerves, the actual presence of paralysis of some of the external ocular muscles, and, lastly, the presence of defective sensibility in the distribution of the nervus trigeminus. The four reported cases illustrating reflex pupillary immobility on one side are of importance in localizing the situation of the lesion. Laying aside at once an affection of the afferent or efferent limbs of the reflex arc as the cause in these cases, we may conclude that the lesion is situated either in the center for the sphincter iridis in the forepart of the oculo-motor nucleus, or in the fibers which unite the nucleus with the proximal end of the optic tracts. The lesion which causes reflex pupillary immobility on one side, with retention of the consensual reflex, merely blocks the passage of the direct fibers from the optic tract to the oculo-motor nucleus on the same side, while that which produces both direct and consensual immobility of the pupil on one side occupies a position which blocks both the direct and the crossed system of fibers, assuming that there is only one lesion. In endeavoring to localize the seat of the lesion in these cases the size of the pupil, apart from its reaction to light, must be considered. Accepting the view that dilatation of the pupil is due to inhibition of the sphincter iridis, the lesion which causes interference with the passage of impressions along Meyner's fibers paralyzes as well the sphincter inhibitory center. These facts lend support to the view that the center subserving the reflex actions of the pupil consists of two parts—a sphincter-contracting and a sphincter inhibitory center—closely associated in function. The fibers from the former pass to the iris in company with fibers for the ciliary muscle by the third cranial nerve, while those from the latter pass down to and through the cervical portion of the spinal cord, and enter the sympathetic through the lower cervical and upper dorsal nerve roots. The study of Turner's cases suggested to him the following subdivision of the fore part of the oculo-motor nucleus: 1. A sphincter-inhibitory center, closely associated with a sphincter-contracting center, which two subserve the pupillary light-reflex. 2. A center for accommodation. 3. A center for contraction of the pupil with convergence, in close association with the center for the associated action of the internal recti muscles. Turner believes that the frontalis and orbicularis palpebrarum muscles, although peripherally supplied by the facial nerve, are "eye muscles," and form the oculo-facial group.

The Influence of Tobacco on the Sight.—Dowling (*Rec. d'Ophthalm.*, October, 1892) draws the following conclusions from his investigations: 1. The subjects examined were between the ages of thirty and sixty years, with the exception of one young man of nineteen, and were all workers in tobacco manufactures. 2. In almost all the cases examined there was noted a gradual diminution in the visual acuity of both eyes. 3. The majority of the patients saw better in the semi-obscurity of the workshop than in the street. 4. There was color confusion, principally of red and green. 5. The most frequent symptom was contraction of the pupil, and this was most marked in those patients who smoked as well as chewed.

Pseudo-glioma.—Collins (*Roy. Lond. Ophth. Hosp. Rep.*, xiii, 3) defines pseudo-glioma as any condition of the eye liable to be mistaken for true glioma, and applies the term to three classes of cases: 1. Those in which there is a persistence and thickening of the posterior part of the fetal fibro-vascular sheath of the lens, or an atypical development of the anterior part of the vitreous, with or without a persistent hyaloid artery. 2. Cases in which large masses of tubercle occur in the chorioid. 3. Cases in which there has been inflammatory effusion into the vitreous, following a retinitis and cyclitis, and in most cases

accompanied by detachment of the retina. In this latter class of cases the eye symptoms are frequently preceded by some acute febrile condition, in many cases by head symptoms of greater or less severity, pointing to meningitis and rendering it highly probable that in all the cases in which cerebral symptoms are obtained some inflammation of the meninges has occurred. The connection between the intra-ocular inflammation and the meningitis might be embolic or one of direct extension along the optic nerve.

In glioma of the retina the appearance of the opacity behind the lens varies considerably according to the relation of the growth to the retina. When it springs from the outer surface—glioma exophytum—the growth is viewed through the retina, and a mass with smooth surface is seen, having enlarged retinal vessels on it, close behind the lens. If it springs from the inner surface of the retina—glioma endophytum—the ragged surface of the growth itself is seen far back, often with little secondary floating nodules in front of it and no retinal blood-vessels on its surface. The reflex obtained from a persistent and thickened posterior fibro-vascular sheath is usually grayer than that from a glioma, and this gray opacity may be confined to the central portions of the posterior part of the lens, a red reflex being seen through it at its extreme periphery in all directions. When the central hyaloid artery is persistent and patent, some of its branches may be seen coursing through the gray membrane. An inflammatory membrane behind the lens may have new blood-vessels developed in it, but these are smaller than retinal blood-vessels. There is nothing distinctive about the appearance of the opacity seen in a case of tubercle of the chorioid, which simulates glioma. In glioma the lens is often pushed forward and the anterior chamber uniformly shallow. Should it be deepened at its periphery and shallow in the center, the case may be diagnosticated as one in which there has been inflammatory exudation into the vitreous and circumferential space which, in organization and contraction, has drawn back the root of the iris and pushed the lens forward. Glioma here may be absolutely excluded. The anterior chamber in cases of persistence of the posterior fibro-vascular sheath is sometimes very shallow. As regards the iris, posterior synechie are common in cases beginning as retinitis with exudation into the vitreous, and may be met with in connection with tubercle of the chorioid. Their occurrence does not exclude the possibility of a case being one of glioma, for occasionally, though rarely, it is associated with inflammation of the uveal tract. There is as yet no definite proof that in the early stage of glioma of the retina the tension is minus. In glioma of the retina there would not be the same tendency to early pressure on the posterior ciliary arteries that there is in sarcoma of the chorioid, arresting the blood supply to part of the ciliary body and so cutting off the nutrient fluid of the vitreous, causing it to shrink. In cases of pseudo-glioma, with detached retina and exudation into the vitreous, the tension is frequently minus.

The history of fits, unconsciousness, attacks of screaming, ear disease, one of the acute specific fevers, or of symptoms of syphilis preceding the eye affection, would be in favor of the case being one of ophthalmitis. If the opacity was noticed at or soon after birth the case would probably be either glioma or a persistent fibro-vascular sheath. Should the symptoms have been produced by a tubercular mass there might be evidences of lesions of a similar nature in other parts of the body.

Metastatic Inflammations in the Eye, especially the Retinitis Septica of Roth.—Herrheiser (*Kl. Mon. f. Aug.*, December, 1892) agrees with the views of Roth as follows: 1. Retinitis septica occurs much oftener than panophthalmitis, which, without considering other pyæmic processes, is even in puerperal fever a tolerably rare complication. 2. It is distin-

guished by its relatively benign character; the retinal foci are very small, circumscribed though sometimes numerous, and show no tendency to extend. The choroid is rarely affected even by hyperemia and discoloration of its epithelium. 3. Its benign course depends upon the fact that this form of retinitis does not rest upon an embolic process. In none or the hitherto observed cases were any vascular plugs found in the retina. The capillaries in the white patches are either normal of the seat of fatty degeneration, but contain nothing abnormal, and the cardiac valves are not covered by vegetations.

A Peculiar Form of Irregular Corneal Astigmatism complicated by Marked Disturbance of the Relative Accommodation in the Affected Eye.—Axenfeld (*Kl. Mon. f. Aug.*, February, 1893) finds that in all these cases of disturbance of accommodation we must count upon: 1. A very varying and elastic power in the relative accommodation. 2. The former total refraction. 3. The size of the pupil and the activity of its reaction. 4. The size and position of the flattened portion of the cornea and the degree of refractive difference. 5. The diminution of the visual acuity in the region of the flattening and its relation to the individual peripheral visual acuity in different parts of the retina. 6. The unioocular diplopia. All these points must be carefully considered before it is possible to thoroughly comprehend the actual condition of the eye in question.

A Modification of Kuhnt's Operation for the Treatment of Senile Ectropion of the Lower Lid.—Müller (*Kl. Mon. f. Aug.*, April, 1893) prefers the following method of operating: An incision in the intermarginal edge of the lid with a lance knife, separating conjunctiva and tarsus from muscle and skin. The incision begins at the point where the wedge-shaped piece is to be excised and has at first the shape and size of this piece. By lateral sliding of the lance knife the incision is increased by a piece the shape of a rhomboid, which forms a trapezoid with the original section. The length of the intermarginal side of this rhomboid depends on the size of the base of the wedge-shaped piece of tarsus which is to be excised. The wedge-shaped piece is then excised and the intermarginal stitches are then first inserted and afterward the stitches in the tarsus. The advantages of the operation are as follows: 1. The tarsus is firmly maintained in its new position by a broad, superficial adhesion between tarsus and skin. 2. The tension is not put upon the stitches inserted in the tarsus, but upon those passing through both skin and tarsus. 3. Only a slight notch is left in the tarsus. 4. There is no permanent prominence left in the lid.

Excision of Muscular Tissue as an Operation in Squint.—Müller (*Kl. Mon. f. Aug.*, April, 1893) does not approve of the method of shortening the muscle advocated by Noyes and Viennse in the operation for squint in place of tenotomy of one or both internal recti muscles. He thinks it should only be employed in those cases in which tenotomy and advancement are done simultaneously. He would employ it in cases of strabismus convergens, where the abduction of the squinting eye is defective; in all cases of strabismus divergens where the squint deviation is more than four millimetres; and in certain cases of strabismus divergens of three to four millimetres, where one eye has very defective vision. The method he employs is similar to that recommended by Schüssler, and he claims for it the following advantages: 1. The operator can excise a piece of muscle of definite length. 2. The insertion of the muscle can not be displaced upward or downward, and hence the vertical meridian can not be abnormally inclined. 3. There is no marked prominence at the inner or outer limbus.

Toxic Amblyopia from Iodoform.—Smith (*Ophth. Rev.*, April, 1893) reports a case of this kind occurring in a man,

aged thirty-one, who suffered from chronic tubercular pleurisy and periostitis. He had taken during a period of forty-one days one thousand grains of iodoform, and during the last ten days of this period he took thirty-two grains daily. The onset of the amblyopia was associated with headache, giddiness and faintness, diarrhoea, twitching of the hands, emotional depression, and a constant smell and taste of iodoform. The urine became alkaline and contained triple phosphates. There were numbness and tingling in the legs, and the knee-jerks were increased. There was slight haziness of the disc margin in both eyes. Vision was greatly impaired and there was a well-marked positive central scotoma, larger than that usually found associated with tobacco amblyopia. The loss of vision began a day or two before the iodoform was discontinued. Four weeks later there was still a central color scotoma in both eyes with a very small absolute scotoma just below the fixation point. R. E. V. = $\frac{1}{2}$; L. E. V. = $\frac{1}{4}$. Under the use of hypodermic injections of strychnine vision steadily improved, and three months after the onset of the amblyopia it had risen to $\frac{1}{2}$ in each eye, and no scotomata could be found.

Creasote in Tuberculous Iritis.—Quint (*Ctrbl. f. prakt. Aug.*, March, 1893) recommends the use of creasote internally, beginning with 0.3 gramme, in cases of tubercular iritis, and running the dose up to 0.75 gramme daily. It must be persisted in for weeks and even months. The author states that it succeeds where everything else fails, and that he has never seen any bad results from its use.

The Relation of Convergence to Accommodation, and its Practical Bearing.—Percival (*Ophth. Rev.*, November, 1892) draws the following conclusions from his observations: 1. The correction of refractive errors, if of high degree, causes a profound alteration in the relative activities of the nervous centers for convergence and accommodation. Most persons have a remarkable power of adapting themselves to the new conditions caused by such correction, and for them prismatic combinations are unnecessary. 2. For those persons who can not so adapt themselves to the correction, relief will often be given even by weak prisms that diminish the strain. 3. Treatment must be based on the relative and not on the absolute convergence. 4. The "area of comfort" is roughly represented by the middle third of the relative convergence range, and practically the oculist need only concern himself with that which has to do with the vision of objects at and beyond the distance of one third of a metre. 5. The glass-rqd test may be regarded as a roughly qualitative test, but it is not a reliable indication of the strength of prism which is required to give relief in these cases. Percival recommends the following tests: 1. Correct all errors of refraction, and determine the relative range of convergence for 0 accommodation by means of abducting and adducting prisms, the test object being at a distance of at least six metres. 2. Repeat the test with the test object at one third of a metre. This will give the dimensions of the range of either side of the point corresponding to D. 3 of accommodation and 3 metre-angles of convergence. 3. Find the absolute maximum of convergence, in order to determine if the range is much contracted.

The Surgical Treatment of Trachoma.—Stephenson (*Ophth. Rev.*, January, 1892) thinks that "expression" is indicated: 1. In follicular disease in which discrete follicles are scattered over the surface of an otherwise normal conjunctiva. 2. In trachoma of recent origin. 3. In old and obstinate cases of trachoma, where the operation may have to be repeated several times. Excision of the *cul-de-sac* is sometimes very useful in relieving the ptosis of severe trachoma, and Stephenson describes his method of operating in such cases, in which he avoids the use of all sutures in closing the wound.

The Prescribing of Prisms.—Maddox (*Ophth. Rev.*, February, 1893) gives the following maxims in prescribing prisms: 1. Never order them unless the indications for their use are unmistakable. 2. Never order them simply on account of an anomaly in the behavior of the eyes under the various tests unless there is asthenopia, headache, tendency to diplopia, or giddiness. 3. Do not judge by one test, but by the "finger," "rod," and "card" tests, and also by the "relative-convergence" test. 4. Remember that considerable latent deviation in distant vision is more important than in near vision, and that moderate divergence in near vision is physiological. 5. Always more or less under-correct with prisms. Prisms to correct hyperphoria should, of course, be equally divided between the two eyes, and should be edged up before the eye that deviates upward and edge down before the other eye.

Synchysis Scintillans and Spintheropia.—Sgrosso (*Rev. gén. d'ophtal.*, Dec. 31, 1892) draws from his observations the following conclusions: The phenomenon of scintillation is due not only to the presence of cholesteroline, but also to that of tyrosine and the phosphatic salts and to those of margarine. The adipose crystals and the calcareous salts coexist with chronic inflammatory and degenerative changes in the coats and media of the eye.

Keratitis Dendritica and Herpes Corneæ Febrilis.—Emmert (*Contrib. f. prakt. Aug.*, December, 1893) regards keratitis dendritica as a very rare disease, while herpes corneæ febrilis occurs with tolerable frequency. Keratitis dendritica occurs in patients in a perfect state of health and without any febrile symptoms, but these patients are almost certain to be of the scrofulous habit. The disease begins with a subepithelial grayish opacity from which grayish prolongations extend in various directions. Above the subepithelial grayish mole-like tunnels the swollen, grayish epithelium becomes raised, is cast off, and the gray, shallow furrow lies exposed. There is a certain resemblance in the form of the infiltration and the loss of substance to the changes that occur in herpes corneæ febrilis, but here the resemblance ceases.

Blood-cysts of the Orbital and Subconjunctival Cellular Tissue.—Mitralsky (*Contrib. f. prakt. Aug.*, January, 1893) considers that cysts or tumors containing blood are by no means rare occurrences in the orbit. He reports one case in detail, occurring in a woman aged twenty-four years, who had suffered for two days from uncontrollable vomiting. There was a black, oval, elastic blood tumor about as large as a Lima bean beneath the conjunctiva oculi and extending back into the orbit. In two weeks this blood tumor had changed into a semi-transparent ovoid cyst. This was removed and examined microscopically, but not a trace of epithelium or endothelium could be found on the inner wall of the cyst. This same condition he has found in several other cases of similar origin.

The Origin of the Striated Keratitis that occurs after Cataract Extraction.—Hess (*Archiv für Ophthal.*, xxxviii, 4) draws the following conclusions from his observations: 1. The generally prevailing view that the so-called striated keratitis is due to a swelling and infiltration of the corneal substance is not tenable. This loosening of the tissue of the cornea, as well as the occasional hyaline degeneration of this tissue, is only an accidental circumstance. 2. The important anatomical change in this striated corneal opacity is a folding of the deeper portions of the cornea, which is expressed or exhibited in the undulatory course of the corresponding layers. 3. The cause of this folding or reduplication must be sought in the fact that by the opening of the anterior chamber a great difference is at once caused between the tension of the vertical and horizontal meridians of the cornea, which produces the same effect as if the cornea were compressed laterally.

A Tubercular Tumor in the Corpora Quadrigemina, with Bilateral Ophthalmoplegia.—Goldzieher (*Contrib. f. prakt. Aug.*, February, 1893) reports a case of this nature, and draws the following conclusions: 1. A tumor occupying the entire region of the corpora quadrigemina need not necessarily be accompanied by blindness. 2. A typical total external ophthalmoplegia, even accompanied by somnolence, is not necessarily caused by primary changes in the central nuclei of the oculo-motors. 3. Ophthalmoplegia, combined with staggering and disturbances of co-ordination in the lower extremities, points to the location of the lesion in the corpora quadrigemina. 4. Spastic contractions in the extremities, combined with general epileptiform convulsions, are caused solely by lesions in the corpora quadrigemina.

The Margin of the Lens considered Ophthalmoscopically.—Dünmer (*Arch. für Ophthal.*, xxxviii, 4) draws the following conclusions from his observations: 1. The edge of the lens appears dark by transmitted light; not because the light reflected from the fundus upon the anterior surface of the lens is totally reflected near the margin of the lens, but because this light is deflected by the equatorial portion of the lens in such a manner that it can not enter the hole in the ophthalmoscopic mirror, and is therefore not perceived by the observer. 2. By oblique illumination the margin of the lens appears as a bright white or yellowish glistening line by total reflection of the light on the posterior surface of the lens, when the lens is dislocated into the anterior chamber. The light must be enabled to pass through the equator of the lens itself and through the neighboring portions of the anterior surface of the lens, in order to be totally reflected on the other side of the equator of the lens. 3. If the lens is so dislocated that a portion of the equator of the lens is turned toward the observer, the edge of the lens which is turned toward the source of light appears in oblique illumination as a glistening white or yellow line by reason of the light thrown back from the interior of the lens and totally reflected at its margin. 4. If the lens is in its normal position or pushed toward either side, by oblique illumination no bright glistening line appears at its margin.

The Treatment of Follicular Conjunctivitis.—Schneller (*Arch. für Ophthal.*, xxxviii, 4) makes the following distinction between trachoma and follicular catarrh: If both retrolateral folds, or a larger part of the conjunctiva, are filled by more than three rows of closely arranged follicles, the diameter of which is greater than a millimetre and a half, and if the conjunctiva between them is densely infiltrated, the disease is trachoma. When the follicles are smaller and fewer in number and the conjunctiva is less infiltrated, the disease is follicular catarrh. This distinction is purely arbitrary and well-nigh useless. For the treatment of the trachoma Schneller recommends a broad excision of the retrolateral fold as soon as the signs of acute inflammation begin to subside.

The Diagnosis of Sympathetic Ophthalmia.—Weiss (*Arch. of Ophthal.*, xxii, 1) believes in the migration theory, but does not believe that the optic nerve furnishes the only route over which the morbid elements can travel to reach the sympathizing eye. If this were true, it would seem remarkable that in the majority of instances the earliest and most pronounced evidences of the disease should first appear in the anterior, and not in the posterior segment of the eye. The statement that the germs commonly enter the second eye at the disc, push their way from behind forward, and, having finally reached the anterior portion of the globe, there for the first time make their destructive influences felt—all this has something problematical about it. As regards the cases of sympathetic neuritis, it is next in order to locate the route along which the infection is carried to the optic nerve. Experiments on animals have dem-

onstrated that it can be transmitted in this manner. When the parts in the anterior segment of the eye are much inflamed, it is difficult, during life, to determine in what percentage of cases the optic nerve entrance and its vicinity are affected; for, even if the ophthalmoscopic examination showed a reddened and ill-defined papilla, the latter appearance may be simply an effect produced by hazy media, and not pathological changes present in the optic disc.

A New Perimeter.—Giles (*Arch. of Ophthalm.*, xxii, 1) has devised a perimeter in which the device for recording observations consists of a graduated index bar fixed at the lower end of a vertical rod, which is connected with the axis of the instrument by means of a beveled gearing in such a way that every change in the position of the graduated arc is indicated by a corresponding change in the position of the index bar. The axis of the instrument is hollow. At the axis is a graduated circle the position of which is fixed, while around it revolve two pointers which are fixed to the arms of the arc. The readings shown on the graduated circle should correspond exactly with those shown upon the chart by the index bar.

The History and Principles of Keratometry; its Value and Limitation in the Correction of Astigmatism.—Weiland (*Arch. of Ophthalm.*, xxii, 1) draws the following conclusions: 1. Keratometry is a very valuable method for the finer diagnosis of the actual construction of the eye. 2. The cornea having been measured, not in the visual line, but in the optical axis of the eye, we find: (a) the direction of the two chief meridians of the cornea; (b) the radii of curvature in these two chief meridians about 1.25 millimetre, or about ten degrees to either side of the corneal point looked at, the result being the more incorrect the more astigmatic the cornea; (c) the cylinder that would correct the corneal astigmatism if placed directly in contact with the cornea, and if the remaining part of the cornea not examined by the instrument does not deviate much from the employed area of the cornea; (d) the cylinder that would correct if placed at the usual distance from the eye. 3. In cases where the corneal astigmatism differs much from that of the whole eye we may then find: (a) the axis of the lenticular astigmatism; (b) the amount of the lenticular astigmatism; (c) the sphere resulting from the combined action of the corneal and lenticular astigmatism.

Embolism of the Central Artery of the Retina.—Elschnig (*Arch. of Ophthalm.*, xxii, 1) makes the following remarks on his series of cases: Ligation of a single carotid artery does not affect vision or produce any marked change in the retinal circulation, since the circulation is at once restored through the medium of the circle of Willis. For this reason, thrombosis of the internal carotid can not directly affect vision. It is possible, however, that thrombosis of the carotid and ophthalmic arteries is a frequent source of embolism of the central artery, for it is difficult to believe that every embolus in a retinal artery has been carried there from the heart. The absence of an embolus in the anatomical preparation does not prove that the clinical diagnosis was incorrect. If some time has elapsed, there may be only a connective-tissue deposit on the intima, which may be covered with endothelium, and escape observation in a casual examination. The centripetal action of the arterial blood current may be explained as follows: The arterial trunk contains an embolus. The blood in its twigs and capillaries, when stasis takes place, is under a pressure not exceeding that of the intra-ocular tension. The neighboring trunk is free and its circulation is normal. A vein of the inferior system anastomoses at the ora serrata with a vein of the arterial twig. As the tension in the arterial twig is less than in the other, the blood flows back into the arterial twig and passes down into the artery, and also out centrifugally into another

arterial branch, the tension of which is also low. The cherry-red color of the macula is partly due to the contrast with the œdematous portion of the retina, but the changes which it undergoes are due to the changes in the pigment epithelium, consisting first in an increase of pigment, and later in its disappearance. These changes in the pigment epithelium are probably not due directly to the retinal anæmia, but to the collateral hyperæmia of the chorioid.

Miscellany.

The Tri-State Medical Society of Alabama, Georgia, and Tennessee.—We are indebted to the secretary, Dr. Frank Trester Smith, of Chattanooga, Tenn., for advance sheets of the abstract of the proceedings of the society's fifth annual meeting, held in Chattanooga on the 17th, 18th, and 19th of October.

The Treatment of Puerperal Mastitis.—This was the title of the paper read by Dr. J. W. Russey, of Chattanooga, who said that compression was of greater general utility, either prophylactic or curative, than any other simple measure; but to be efficient it should be used early after labor. Dr. Guitéras's chest binder was the most satisfactory means of applying pressure. If an abscess formed, the pus should be removed early and perfectly. Washing the abscess cavity was preferable to the use of drainage-tubes. If a drain was necessary, horse hair was preferable to rubber tubing. If circumstances admitted of it, great care should be taken in selecting the point for opening the abscess, as the situation of the scar was of importance from a cosmetic point of view.

The Treatment of the Diseases of the Uterine Appendages.—This was the title of a paper read by Dr. J. A. Goggans, of Alexander City, Ala., who presented specimens of ovaries. The cases reported had all resulted from pre-existing uterine disease, generally endometritis. The three principal points of diagnosis in diseases of the uterine annexa were: 1. Repeated attacks of peritonitis. 2. Repeated hæmorrhages. 3. Pain. The indications for operating were: 1. Those attending peritonitis, accompanied by tortuous and distended Fallopian tubes, which could usually be felt in Douglas's pouch behind the uterus. This condition might be preceded by the history and symptoms of abortion, of gonorrhœa, or of a tubal pregnancy. 2. The physical signs of enlarged and tender ovaries due to chronic abscess. 3. The physical signs of prolapsed and tender ovaries accompanied by irregular hæmorrhages and disabling pains. 4. In some few cases dysmenorrhœa as the principal symptom. 5. Hæmorrhage as the principal symptom accompanied by the ordinary signs of grave pelvic disease. 6. In a few cases general peritonitis preceded by the symptoms of rupture of a pre-existing pelvic abscess, of an ovarian abscess, of a pyosalpinx, or of an abscess developed in the appendages during the progress of puerperal septicæmia. He distinguished endometritis clinically as simple, gonorrhœal, and septic. 7. Constitutional treatment was recommended and it was generally to be followed by local treatment, especially with tampons soaked in a ten-per cent. solution of ichthyol, either with or without previous dilatation of the cervix. This plan of treatment deserved serious consideration before patients were subjected to the dangers of laparotomy.

Membranous Croup, with a Report of Cases treated by Tracheotomy.—R. M. Harbin, of Calhoun, Ga., read a paper which ended with the following conclusions: 1. Membranous croup is almost invariably fatal without surgical treatment, and

with medicinal treatment but little can be hoped for. 2. Any hope from an expectant plan of treatment is nil, and, in view of the few patients that recover without surgical treatment, it does not demand consideration. 3. Tracheotomy is a justifiable surgical procedure, and should be performed in all cases where our therapeutic resources have been exhausted and the patient is in danger of suffocation. In hopeless cases it affords a chance for recovery or promotes euthanasia. 4. Statistics would be better if infectious diseases were eliminated, such as diphtheria, etc. 5. Tracheotomy keeps the patient alive until the false membrane resolves into a muco-purulent liquid and is expectorated through the tube. 6. In all human certainty, the patients whose cases had been reported would have died without the operation. 7. The importance of after-treatment in keeping the tube moistened with limewater and the room at an equable temperature was emphasized. 8. The tube should not be removed until the purulent nature of the sputa ceases, which is about on the eighth day. 9. A lack of instruments is no excuse for the non-performance of the operation, as a tube only is necessary in addition to general operating instruments.

The Treatment of the Omentum in Operations for Hernia.—Dr. G. A. Baxter read a paper on this subject, in which he advocated the removal of the redundant omentum, and reported a case in which four pounds of omentum had been removed. The patient and the omentum removed were shown.

Serous and Watery Discharges during Gestation; their Source and Significance.—Dr. J. R. Rathmell, of Chattanooga, read a paper in which he expressed his belief that the profession had been mistaken in accepting the theory that these discharges proceeded from the amniotic sac. Rupture of the sac was always followed by the expulsion of the fœtus. There were two other sources from which they could come—from the cervix and from the decidua. Cases illustrating these sources were related as having come under the author's observation.

Croupous Pneumonia, with Special Reference to the Prophylaxis and Treatment.—Dr. R. M. Cunningham, of Birmingham, Ala., read a statistical paper on the recent epidemic among the convicts at Pratt Mines. His conclusions were as follows: 1. That the epidemic had been unusually severe, general, and fatal, coming on without apparent cause and practically ending abruptly. 2. That the negroes had been attacked in more than twice as great proportion as the whites. 3. That it had affected all ages alike. 4. That it had attacked the robust and strong as often as those who were in bad physical condition. 5. That it had affected those who worked outside the mines quite as much as those who worked within them. 6. That an unusually large number had been suddenly and violently attacked. 7. That an unusual amount of pulmonary tissue had been involved. 8. That the temperature had been exceptionally high and the pulse and respiration exceptionally rapid. 9. That the mortality had been low considering the extraordinary severity of the endemic and the character of the patients. As a prophylactic measure, disinfection had been tried by washing the cells with a solution of bichloride of mercury and steaming the bedding. The epidemic had terminated abruptly, as a result, the author believed, of this disinfection.

The Treatment of Septic Bubo.—Dr. W. Frank Glenn, of Nashville, read a paper on this subject, in which he advocated the application of ice, the hypodermic injection of a one percent. solution of mercury benzoate, and the use of a compressive bandage. When suppuration had occurred, a free incision was to be made. He thought it would be best to cut out the glands as soon as they became inflamed.

Fractures near the Elbow Joint.—Dr. J. B. Murfree read a paper in which he remarked that it was only rarely that such

fractures were caused by muscular contraction. An excessive or abnormally situated formation of callus and inflammation involving the bones and the soft parts occasionally occurred, and were apt to impair the functions of the joint permanently.

In a paper on the same subject Dr. Willis F. Westmoreland, of Atlanta, said he treated such cases by flexing the arm at a little more than a right angle in a posture of rest. In fractures of the olecranon it was not best to extend the arm fully. He used a plaster-of-Paris bandage.

The Treatment of Biliary Calculus.—This was the subject of a paper by Dr. W. E. B. Davis, of Birmingham, Ala. Speaking of cases in which it was difficult to remove the calculi from the common duct, and the patient's condition would not warrant a long operation, he advocated the introduction of a glass tube with a packing of iodoform gauze about it, without attempting to repair the duct by means of sutures.

Movable Kidney.—In a paper on this subject Dr. J. B. S. Holmes, of Rome, Ga., remarked that an important diagnostic point was the fact that pressure on the kidney always produced nausea and faintness. If there was much disturbance and the kidney could not be kept in place with a bandage or abdominal supporter, it should be removed; but it should first be ascertained if the other kidney was healthy.

The Treatment of Typhoid Fever.—Dr. Y. L. Abernathy, of Hill City, read a paper on this subject. He maintained that in many cases it was impossible to diagnose typhoid fever from continued malarial fever. He believed in an aggressive form of treatment, and advocated the use of quinine and mercury, also hydrotherapy.

Incomplete Ankylosis.—Dr. C. W. Barrier, of Columbus, Ga., read a paper in which he summarized the indications of treatment as consisting of the arrest of the atrophy of the synovial membrane and the restoration of its function by breaking up excessive adhesions and preventing the formation of others, restoring the hamstring tendons to their normal length, and arresting the atrophy of the quadriceps tendon and stimulating it to antagonize the hamstrings. These indications, he thought, were better met by an elastic dressing than by a fixed dressing or an operation.

The Action of Galvanism on the Uterus.—Dr. H. Berlin read a paper reporting the result of certain experiments in which a galvanic current had been passed through the uterine tissue and the latter then subjected to a microscopical examination. In one case the experiment had been performed on the living subject, and the organ subsequently removed. In the other cases the dead body had been used. His conclusion was that the only effect was the destruction of the mucous membrane, and curetting would accomplish the result much more quickly.

At the next meeting, to be held in Atlanta on the second Tuesday in October, 1894, the proposition to change the name to the Southeastern Medical Society will be considered.

Medical Ethics in Washington.—The following article lately appeared in the *Washington Evening Star*:

"There was a largely attended meeting of the Medical Association last evening and the principal business was the hearing of the report of the standing committee. As has been stated in the *Star*, charges had been brought against several members of the association relative to alleged violations of the ethics of the profession, and in accordance with the rules the charges were referred to the standing committee for investigation. The report of the committee was complete, showing that they had thoroughly sifted the charges, and the association indorsed their work by the unanimous adoption of the report. In the case of two doctors charged with practicing homeopathy, the commit-

tee learned that one of the doctors had gone into other business, and that fact itself placed him outside of the association; while in the other case the accused doctor claimed that he had sent in his resignation as a member of the association some time ago and supposed that it had been received. In this case the committee simply reported in favor of granting his request and dropping his name from the rolls.

"The charge preferred against Dr. Hyatt, alleging unprofessional advertisement of himself, was thoroughly disapproved and the committee so reported. As to the charge that Dr. Hammond was making money from a patented medicine of his own invention, the committee, after hearing the evidence on both sides, found that the charge was not sustained. The adoption of the report by the association disposed of all the cases that have been brought to the attention of the association and of the committee.

"It is said that the matter will not end here. The charges were not only unfounded, it is asserted, but publicity was at once given to the matter. It is stated that the proceedings were irregular from the start. According to the rules of the association, charges affecting the conduct of members are to be made in writing and submitted to the standing committee. In this case it is said that the charges were originally made at a meeting of the association by the president, Dr. L. Elliot, who left the chair for this purpose. It is further stated that, contrary to the rules, and on the very next day, the charges were made public in the newspapers before an opportunity was had to have any investigation into their truth. It is asserted as very likely that charges will be brought against the president, and that another investigation will be had."

The New York Academy of Medicine.—The programme for the next regular meeting, on Thursday evening, the 16th inst., comprised the following papers: Myxoedema, Acquired and Congenital, and the Use of Thyroid Extracts, by Dr. George W. Cray; and Remarks upon the Thyroid Treatment of Myxoedema, with a lantern exhibition of photographs of cases, by Dr. M. Allen Starr (to be discussed by Dr. W. Gilman Thompson, Dr. W. K. Draper, and others).

At the last meeting of the Section in Orthopaedic Surgery, on Friday evening, the 17th inst., Dr. Samuel Ketch was to read a paper entitled A Case of Pott's Disease in the Adult, with Paraplegia of Unusual Location and Distribution; Dr. Newton M. Shaffer, one on Three Cases illustrating Relapse after Excision of the Hip Joint; Dr. J. Halsted Myers, one on A Case of Impacted Fracture of the Neck of the Femur; Dr. V. P. Gibney, papers on A Case of Osteitis of the Knee, showing the Correction of a Peculiar Deformity, and on A Case of Supramalleolar Osteotomy for Obstinate Clubfoot.

At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 20th inst., under the order of Exhibition of Patients, Dr. Walter B. Johnson will show an example of Amblyopia from Suppression of the Visual Image; Dr. J. B. Weeks will show a patient who recovered useful vision after sympathetic ophthalmia which came on forty-two years after the loss of vision in the exciting eye; and Dr. H. Knapp will give a demonstration of an orbital cyst removed *in toto*. Dr. Francis Valk will read a paper entitled The Power of the Interni.

At the next meeting of the Section in General Medicine, on Tuesday evening, the 21st inst., the general subject of discussion will be The Therapeutics of Acute Diseases.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 22d inst., Dr. Horace Clark, of Buffalo, will report several unusual cases, and there will be a discussion on Syphilis of the Upper Air Passages.

Dr. J. E. Nichols will give the clinical notes of cases of adhesion of the velum to the wall of the pharynx from syphilis and other causes.

The anniversary discourse will be delivered before the Academy on Wednesday evening, the 29th inst., at 8.30 o'clock, by Dr. William H. Thomson.

The Horseshoe on the Door.—Dr. T. O. Summers, of Waukesha, Wis., sends us the following:

I wonder where the patients are—
Why everything's so dull;
'Twas just a month or so ago
I had my office full.

But now the bell I never hear,
And money's running low—
I tell you something must be done,
And that right soon, you know.

"I'll tell you what," the good wife said,
"You laugh at old folklore,
But patients stopped that day you took
The horseshoe from the door.

"And I am going to put it back;
You'll see how quick they'll pour
Into your office when you put
That horseshoe on the door."

She put it back and then remarked,
"I told you so before,
And greater men than you believe
In horseshoes on the door."

Alas, for all the luck it brought!
Or patients did restore,
Next day upon my bald pate fell
That horseshoe from the door.

And while I groaned, and bitterly
At superstition swore,
She blandly said, "It brought a case—
That horseshoe on the door."

The Army Medical School.—The following order of duties for the session of 1893-'94 has been issued: Daily, except Saturdays, Sundays, and holidays: 9 A. M. to 12 M., instruction in pathological laboratory; 1 P. M. to 2.50 P. M., instruction in chemical laboratory; 3 P. M. to 4 P. M., lecture. Saturdays: 9.30 A. M. to 10.30 A. M., at Hospital Corps School of Instruction, Washington Barracks, practical instruction in litter and ambulance drill and first aid; 1.30 P. M. to 3 P. M., in Riding Hall, Fort Myer, Va., practical instruction in equitation. The lectures will be delivered as follows: Duties of medical officers, Wednesdays, except November 23, 1893, and January 24, 1894. Military surgery, etc., Thursdays throughout the course. Military hygiene, Fridays, except February 23, 1894. Military medicine, Tuesdays, November 7 and 14, Wednesday, November 22, 1893, and January 24, and Mondays, January 29, February 5, 12, and 19, 1894.

Auxiliary Courses.—Bacteriology, General Sternberg: Mondays to and including January 23, 1894. Military law, Major G. B. Davis, Judge Advocate, U. S. A.: Tuesdays in January, 1894. Comparative anatomy, etc., Captain J. C. Merrill, Medical Department, U. S. A.: Tuesdays in December, 1893. Medical jurisprudence, Dr. Robert Fletcher, F.R.C.S. Eng.: Tuesdays in February, 1894 (except the 27th); also Friday, February 23d. Parasites in man, Professor C. W. Stiles, M.D., Department of Agriculture: Tuesdays, Novem-

ber 21 and 28, 1893. Due notice of any change of programme will be posted on the bulletin board.

[Signed.] WALTER REED,

Captain and Assistant Surgeon, U. S. A., Secretary of the Faculty.

The Emergency Treatment of a Toothache.—In the *Medical Record* for November 11th Dr. John E. Weaver, of Rochester, writes to the following effect: Toothache, according to the books, is a matter of small consequence, but many a physician would rather meet a burglar at the door on a dark night than a call to cure a bad toothache of several days' continuance. A hypodermic injection of morphine only postpones the evil day, and usually the patient is respectfully referred to the dentist. The tooth should not be extracted while the jaw and gums are inflamed and the latter swollen, and it is the physician's duty to treat the case until these conditions are removed. The author advises always keeping on hand a small phial containing a mixture of ten drops each of chloroform, glycerin, and a saturated solution of carbolic acid and a grain of morphine, also a small wad of absorbent cotton. If the aching tooth has a cavity or a decayed surface, a small pellet of cotton should be saturated with the mixture and put into the cavity or against the decayed surface, as the case may be. The cotton is not to be packed in, for it will increase the trouble, but the pellet should be small enough to enter without crowding. In most cases this will end the trouble. When the gums are swollen and tender they should be painted two or three times at intervals of two minutes with a four-per-cent. solution of cocaine. At this time of the year, the author remarks, the patient may have been eating a good deal of fruit. If the tongue and the mucous membrane of the mouth are pale there is probably sour stomach, and the next day the toothache will return. Under such circumstances ten grains each of bismuth subcarbonate and phenacetine should be given at once before each of the three following meals, with a laxative if needed, and the eating of fruit should be stopped for a few days.

The Medical Society of the University of Maryland, which was recently organized in Baltimore, to be composed of the faculty, the adjunct faculty, the members of the teaching and hospital staffs, and graduates of the university, will meet on the first Tuesday of each month. The officers were elected as follows: President, Dr. J. J. Chisholm; vice-president, Dr. C. W. Mitchell; secretary, Dr. W. B. Canfield; members of the executive committee, Dr. J. E. Michael, Dr. W. B. Platt, and Dr. J. M. Hundley.

Sore Nipples.—The *Medical Report* recommends the application of a mixture of four parts of ichthyol, five parts each of lanolin and glycerin, and ten parts of olive oil, which is to be washed off before the infant is allowed to nurse.

Kerosene-oil Poisoning.—In the *Indian Medical Record* for October Dr. John Morton, of Mussoorie, relates the following history of a case:

"An old retired officer of the educational department, who has been under observation for insanity, in a fit of temporary mania swallowed half a bottle of kerosene oil, and immediately afterward, finding the effects of the oil too depressing, took two ounces of sal volatile. On seeing the patient two hours after this accident, I found him collapsed. His lips were blue, and face generally cyanosed. The pupils were dilated, and he complained of great difficulty in swallowing. Under his bed lay a good deal of blood which he had both vomited and coughed up. From the severe vomiting, I judged that very little of the oil had remained in his stomach, and therefore did not think it necessary to give him an emetic. As there is no

recognized antidote for kerosene oil, I treated him on rational principles, allaying the extreme sickness by bismuth and soda, and warmth to the body. For some days the dysphagia continued with rawness of the throat. He occasionally vomited the nourishment given him in teaspoonfuls, but with the addition of a little opium to his mixture, these symptoms subsided. There was no diarrhoea at any time. The kidneys were probably congested for a week afterward, the urine being passed in very small quantities. He did not quite recover for a month later, but he seems now to have entirely regained his health and strength. For the dysphagia I used cocaine lozenges with great benefit."

The Strychnine Treatment of Snake-bite Poisoning.

Dr. Mueller, of Australia, the champion of the use of large doses of strychnine in the treatment of snake-bite poisoning, has recently published a book entitled *Snake Poison, its Action and its Antidote*. In the September number of the *Australian Medical Journal* there is an editorial article on the subject of which the following is the concluding portion:

"At the outset, Dr. Mueller must be congratulated on the ingenuity with which he conceived his theory, and the energy and eloquence with which he advocates it. His analysis of the symptoms produced by snake poison, and the conclusions drawn as to its mode of action, and the consequent antagonism existing between it and strychnine, are deserving of the highest praise. It must be conceded that some antagonism does exist, as shown by the large doses of strychnine tolerated by snake-bitten persons. The contention, however, that strychnine is a complete antidote does not appear quite sustained at present, and Dr. Mueller's refusal to admit the results of experiments on animals is not only unscientific, but illogical. He appeals to Feokistow's experiments on animals to confirm his views as to the action of snake poison, but refuses the same experimenter's results as to the action of strychnine.

"Then again, as above stated, when strychnine fails in the human subject, the failure is attributed to the faulty method of its use—it was not given in sufficient quantity, or was given too late. On the other hand, when we remember how exceedingly difficult it is to estimate the amount of snake poison actually received by bitten persons, and the liability to confuse the symptoms produced by fear, or by alcohol, with those of snake-poisoning, it is evident that the value to be attached to cases of recovery must be largely discounted. It is always possible that recovery would have taken place had nothing been done. Hence we must fall back on the experimental method; and at the last meeting of the Intercolonial Medical Congress Dr. C. J. Martin, of Sydney, was appointed to investigate whether strychnine is an antidote to snake poison, and the results of Dr. Martin's experiments will be awaited with much interest."

The late Dr. Clarence Glisan, of Portland, Oregon.—The following resolutions were adopted at the last stated meeting of the Society of the Alumni of Bellevue Hospital:

Resolved, That it is with the deepest regret that this society has learned of the death of Dr. Clarence Glisan, one of its younger members, who had entered upon a career of honor, usefulness, and success.

Resolved, That in the death of Dr. Glisan his colleagues have lost a friend endeared to them by his noble qualities of heart and mind.

Resolved, That this society, in expressing its sorrow and appreciation of its loss, desires in addition to extend its deep sympathy to his bereaved family.

[Signed.] STUART DOUGLAS, }
D. H. McALPIN, } *Committee.*
W. E. STUDDIFORD, }

Original Communications.

THE EXAMINATION UNDER ANÆSTHESIA: ITS USES AND ITS LIMITATIONS.

By HOWARD A. KELLY, M.D.,
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JOHNS HOPKINS UNIVERSITY.

THE examination under anæsthesia has a broad field of utility as yet not fully realized in gynæcological work. In this way alone are we enabled to palpate the whole peritoneal surface of the uterus, anterior as well as posterior, together with the ovaries and the tubes. If the patient be highly sensitive, if there be tympanites, or if the abdominal walls are thick and vaulted, it may be impossible to exclude the presence of myomata and lateral inflammatory disease by the usual methods of examination, and the utmost the gynæcologist will be able to affirm in his note will be "tenderness," or "sense of resistance in the fornices," or "probable pelvic inflammatory disease." The examination under anæsthesia at once answers the query completely and satisfactorily as to "neurosis" or "inflammation" or "tumor." I have thus repeatedly found disease calling for immediate operative treatment in patients who had been examined in the ordinary manner, and had even been treated topically.

A want of familiarity with the methods and a failure to employ anæsthesia for purposes of examination may be a source of grave error in gynæcological diagnosis.

Chloroform is, as a rule, the best anæsthetic for this purpose, on account of its rapid action, and the fact that it is not so apt to be followed by nausea and vomiting.

Frequently the patient can be examined under the primary effect of the anæsthetic in less than a minute, even noting during the examination the smallest irregularities



FIG. 1.—Corrugated tenaculum for catching the cervix and holding the uterus down near the outlet. The corrugations prevent the tenaculum from slipping while it is held on the ball of the thumb by the third and fourth fingers. The index finger of the same hand may be used in making a rectal examination. This practically makes two hands out of one, leaving the other hand free for the abdominal palpation.

of surface in uterus or appendages, and detecting the slightest adhesions.

The Manner of conducting the Examination under Anæsthesia.—The patient is brought to the edge of the



FIG. 2.—Traction forceps employed in drawing the uterus down toward the outlet.

table; her thighs are well flexed on the abdomen and held in this position by an assistant on either side, or by Kelly's leg holder.

The index finger is first introduced into the vagina to determine the position of the uterus. A bullet forceps,

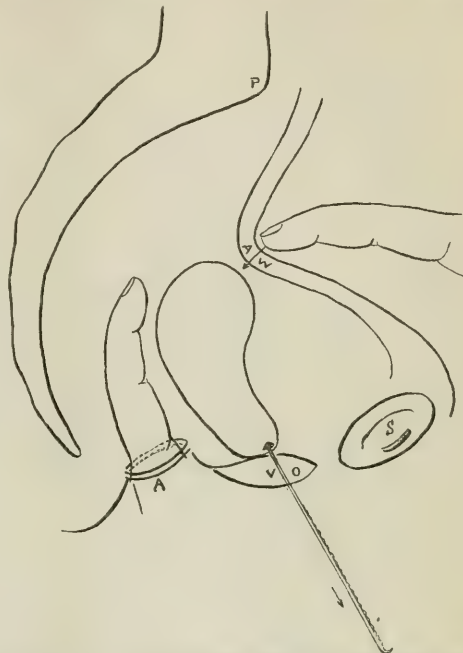


FIG. 3.—Cervix drawn down into artificial descensus to vaginal outlet by means of corrugated tenaculum. Bimanual palpation of anterior surface, fundus, and posterior surface through rectum and anterior abdominal wall.

or the author's corrugated tenaculum (Fig. 1), is then introduced on the index finger and the anterior lip of the cervix caught. The tenaculum is held by one of the assistants while the examiner introduces his finger into the rectum, and with the other hand pressing down through the superior strait makes a thorough bimanual examination. Instead of the corrugated tenaculum, the bullet forceps which is used in repairing the lacerated cervix may be employed as a tractor in drawing the uterus into descensus (Fig. 2).

In order to reach the fundus uteri and the ovaries and tubes it is necessary for the assistant to draw the cervix down, sometimes even as far as the vaginal outlet (Fig. 3).

With the uterus thus brought into artificial descensus the examiner will be able with perfect ease to palpate its fundus, and upon pulling the uterus over into retroflexion, by hooking the rectal finger over the fundus, the whole anterior surface as far as the bladder is brought within touch (Fig. 4).

The ovaries are readily found by taking the utero-ovarian ligaments as landmarks; these are always felt as distinct sharp cords in the posterior surface of the broad

ligament just below the cornu uteri; by following them out for an inch from the uterus the ovary is found. In this way the identity of doubtful bodies lateral to the uterus



FIG. 4.—Uterus drawn down into artificial descensus to vaginal outlet and into retroflexion by means of the rectal finger hooked over the fundus, thus bringing all of its surface into easy touch.

is often determined, and ovaries apparently impossible of access are readily palpated.

Such an examination as this is but rarely possible in the conscious subject. The extreme displacement here spoken of is not injurious if traction is not made when more than slight resistance is encountered. This displacement must not be kept up for many minutes, and must not be repeated too frequently.

The Indications for the Examination under Anæsthesia.—

1. In a young woman with an intact hymen.
2. When the ordinary vaginal examination is not satisfactory, leaving the question as to the condition of the appendages and the fundus uteri in doubt, provided—
3. That the patient's history and symptoms indicate an intrapelvic affection.
4. That the examination is made by a trained and gentle hand.

The fourth condition may be modified, however, in case of necessity, as any physician possessing a good general idea of pelvic diseases ought to be able to exclude the presence of serious intrapelvic lesions in the absence of resisting masses which are evident even to an untrained touch.

Nota Bene.—There should be no undue haste in proceeding to an examination under anæsthesia where the

symptoms are not urgent. It is also often best to first test temporizing measures in cases which may be kept under observation.

The Limitations in the Employment of the Examination under Anæsthesia.—1. Unnecessary examinations must not be made; in the majority of cases an ordinary thorough vaginal examination, if conducted with a little tact and persistence, or, if necessary, a second examination at a later date, will afford sufficient information to direct the treatment.

2. Patients must never be examined without their full consent, and they must have the right to withdraw their consent at the last moment.

3. Great care must be taken in examining young girls. In no case should the hymen be ruptured except under stringent necessity. An index finger larger than six centimetres in circumference debars its possessor from the right to make a vaginal examination in young women even under anæsthesia. The preservation of this mark of her virginity is the sacred, inviolable right of every unmarried woman. The careless rupture of the hymen to secure information which can be as well or better gained by a rectal examination is an outrage. Even when it is necessary to dilate the cervix this can be done by catching the cervix with a forceps introduced into the vagina and guided by the rectal finger; in this way the uterus can be drawn down within reach, while the hymen is held gently open by a virginal speculum.

4. No respectable unmarried woman should be used for class teaching. To place a virgin on the table under an anæsthetic at the disposal of a class of students is a defilement closely akin to rape, revolting to every honorable instinct.

5. Patients with tumors and pelvic inflammatory diseases should not be kept anæsthetized over half an hour, and never more than three physicians should be allowed to examine a patient under one anæsthesia.

6. These examinations must be made with great gentleness and under the direction of a responsible teacher, as rough examinations often rupture pus sacs, hæmatomata, and large cystic ovaries, or bruise the abdominal walls.

7. After such an examination the patient should rest for some hours, or even for several days in bed.

8. These examinations must be conducted in privacy, but few students being admitted to the room at a time.

9. Out of respect to the patient, visitors should not be permitted to come and go from the examining room during the examination.

I have advocated strongly the importance of systematic examinations in doubtful cases under anæsthesia, and have endeavored to pave the way for a general adoption of this plan in my paper on *The Examination of Normal Ovaries*.* I have thus been at pains to lay down these explicit rules with regard to its limitations as I have perceived their urgent necessity in several instances.

* *American Journal of Obstetrics*, February, 1891.

INTESTINAL OBSTRUCTION FOLLOWING ABDOMINAL SECTION.*

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OF the complications following abdominal section few are more fatal than occlusion of the intestines. It may appear in a few hours after the section, or not until several weeks have elapsed.

I shall treat only of acute intestinal obstruction in this paper. It is difficult—indeed, well-nigh impossible—to form a just estimate of the frequency of this occurrence. The writer is conscious of having met with but a single case in one hundred and thirty abdominal sections, yet this case, occurring two weeks and a half after what we had considered a very successful ovariectomy, the first symptoms of which appeared on the first day the patient sat up, has made a deep impression upon his mind and has led to the writing of this paper. The occlusion of the intestines may be caused by torsion of the intestines, invagination, by internal strangulation of some portion of the tract in consequence of a loop of intestine running through an opening made by a tear in the omentum or mesentery, by acute flexion of the intestine induced by its adhesion to some portion of the internal abdominal wall or to some abdominal viscus, by compression of a portion of the intestine in consequence of adhesion stretched over it and pressing upon it, by internal strangulation resulting from incarceration of a portion of gut after having extended through a foramen formed by adhesive bands or by adhesion of a loop of intestine, the mesentery and intestine forming a considerable portion of the circumference of the foramen. Invagination is most frequently found in the small intestines and is not more prone to appear after laparotomy than at other times. It is surprising that torsion does not more frequently occur after abdominal section. The reasons are, I think, that the sigmoid flexure of the colon where it is most prone to appear is not often disturbed during the section, while the peristaltic movements of the intestines and the method of attachment of the mesentery prevent anything more than a temporary torsion of the small intestines. The movements induced by the respiratory effort also have a tendency to restore the displaced small intestines to their normal positions. Rude manipulation of the omentum and mesentery sometimes results in tears, leaving an opening which may lead to future trouble.

In Rockwell's table of eighty-nine cases of acute intestinal obstruction,† twenty-four, or thirty-four per cent., were due to adhesions. A larger percentage of instances of occlusion will be found due to this cause in cases following abdominal section.

The symptoms to which this occlusion gives rise are usually pronounced at first, but may in case of internal strangulation not appear in all their intensity until the second day. Persistent vomiting is almost always present.

At first the matter vomited may be simply undigested food, or the liquids drank, but later will be of a bilious character, and further on stercoraceous. This vomiting is uncontrollable. There is always pain, which is usually at first localized about the site of obstruction, and finally is more or less general. There is frequently localized tenderness situated according to the site of the occlusions. Except in cases of invagination, tympanites is almost constantly present. When the occlusion is in the small intestines, which it more frequently is, there may be during the first few hours a faecal passage, but later on no thorough action of the bowels can be obtained. Occasionally there may be a passage of flatus, but it will be from the large intestines.

Obstinate constipation and persistent vomiting must be taken as the most characteristic symptoms, and if stercoraceous vomiting occur it is pathognomonic of occlusion. One can not fail to observe the appearance of the countenance, which indicates the presence of a grave lesion. The pinched expression, the sunken eyes, around which are dark circles, all betoken a serious malady. The temperature is sometimes elevated, though in many of the gravest cases it does not reach higher than 102° F. So far as my observation has extended, the patients are always aware of the gravity of their illness. At the last a condition of collapse appears, and usually delirium is present the last few hours. The malady is uniformly fatal if the occlusion is not overcome by surgical means. The early diagnosis of the case is of the utmost importance, and yet is often difficult. The occlusion that appears many days or several weeks after the section usually is attended by symptoms that lead to a suspicion of adhesions.

The following is a history of my case, which will illustrate this point:

Mrs. D. was operated upon June 26, 1893, by abdominal section for the removal of a twenty-five-pound ovarian tumor. There was a history that indicated the rupture of the tumor into the peritoneal cavity some time previously. She was examined by Dr. Sweeny, of Milton, Ind., who discovered an ovarian tumor reaching above the umbilicus. A few days later the patient felt a sudden giving way, and this was followed by a gradual disappearance of the tumor. Two weeks later she came to me for examination, when I could find no evidence whatever of an ovarian tumor, but there was ascites. Several months later she came to me again, when, on examination, I found a somewhat movable fluctuating tumor as large as a seven months' pregnancy. On opening into the abdominal cavity, a quart of thick, gelatinous fluid ran out of the wound. The tumor was found adherent to a loop of small intestines and to the parietal peritonæum upon the left side. The pedicle was attached to the left side and was made up of the ovarian ligament and a portion of the left broad ligament. It was short and broad as three fingers and was secured by a ligature and cut off just above the same. The cyst was multilocular and contained about three gallons of thick, glossy-like semi-fluid of the same character precisely as that found in the abdominal cavity, except that it was slightly thinner. The abdominal and pelvic cavities were irrigated and a careful toilet made. No drainage was used. There was nothing very unusual in the course of the case subsequent to the operation except that she had more difficulty in obtaining an action of the bow-

* Read before the Mississippi Valley Medical Association at its nineteenth annual meeting.

† *Annals of Surgery*, vol. viii, p. 91.

els, and that she was troubled by an accumulation of gas. On the seventeenth day she sat up in a chair. For a week she had been importuning us to allow her to leave the bed. She was strong and apparently well, except that she complained of pain in the right inguinal region. Her bowels moved in the morning as a result of an enema. In the afternoon she sat up half an hour and seemed to enjoy it; after lying down she complained of considerable pain in the lower part of the abdomen. An enema was given and she had a good movement; also emitted gas. The pain continued and in a few hours she vomited. Codeine and bismuth were given. There was a slight elevation of temperature and the pulse reached 90 per minute once; at other times it was 84 per minute. The following morning showed the patient restless, with occasional vomiting, but no tympanites. The temperature rose gradually during the day and finally reached 101.4° with a pulse of 96. The vomiting was persistent. High injections were used; the first one resulted in a small movement and the passage of considerable gas. Small doses of calomel, and finally Epsom salts, were given, only to increase the urgent symptoms. The vomiting was of a watery fluid and bilious later. The following morning the symptoms were still more urgent. The vomited matter was grumous, and about nine o'clock (forty hours after onset) it became stercoraceous. There were tympanites, considerable pain through the abdomen, and persistent constipation. There could be no doubt there was complete occlusion. We determined to reopen the abdomen, but the delay in the arrival of the patient's husband compelled us to defer the operation until several hours later. It was done at 2 P. M.—forty-five hours after the onset, and about twelve hours after we became convinced there was complete occlusion. The section was made through the former incision, which was firmly united. We came at once upon a largely distended small intestine of a chocolate color. Pushing it to one side, we found about eighteen inches of collapsed small intestine; finally, in the right iliac fossa we found a foramen into which a loop of intestine had passed and had become strangulated. This foramen was formed by an adhesion of a loop of the small intestines to the stump; this loop was slightly rotated and fixed so that in addition to its mesentery it formed a large portion of the wall of the foramen; the stump, head of the colon, and adhesions formed the remainder of the wall. The opening was large enough to readily admit the index and the middle fingers. The adhesions of the intestine to the stump were easily broken up, and thus was the strangulated portion of the intestine set at liberty. The collapsed portion, which had been pale, gradually distended with gas and took on a rosy color. The intestines were replaced, the omentum drawn down over them, and the abdominal incision closed. The patient suffered much from shock and we were energetic in our effort to relieve her. The bowels acted before the patient left the table. After placing her in bed the stercoraceous vomiting continued and the evidences of shock continued. The patient died three hours after the completion of the operation. A more favorable result might have been expected had we operated earlier, though the reported cases show a very high rate of mortality.

The question of prophylaxis is a most important one. Rude handling of the omentum and mesentery should be avoided. When a tear in either of these structures is observed it should be at once closed, or, if in the omentum, a portion of that structure may be incised and the edges of the incisions stitched together with fine silk. Adhesions are most liable to occur in cases in which there have been found many adhesions at the time of the operation, in in-

stances in which the peritonæum has been abraded, the hot iron or chemical agents have been used, and, lastly, in cases in which septic material has been introduced during the section. The utmost care should be employed in separating, so far as possible, all adhesions formed, and in closing in abraded or incised surfaces by stitches or omental grafts. Many times this will be impossible. I believe the use of the hot iron and chemicals within the abdominal cavity has been sufficiently often and forcibly condemned to make their use infrequent. Hereafter I shall endeavor to cover the cut surface of the stump by uniting the peritoneal edges by sutures. This can be readily done if the stump is left moderately long and a wedge-shaped piece removed from the center. It is unnecessary to dwell upon the advisability of avoiding the introduction of septic material during all operations. We all understand the importance of this, and endeavor to obtain a clean record in this regard. Much discussion has arisen during the last two or three years regarding the effects of the abdominal bandage in favoring the occurrence of intestinal obstruction. There can be no question but that the binder limits the movements of the intestines, and thus it may to some extent favor the formation of adhesions, if there be exposed abraded or cut surfaces.

I do not, however, believe we are justified in abandoning the use of the binder, for the reason that, in case of a large tumor, it yields a support to the abdominal organs and blood vessels that gives comfort to the patient and may and often does prevent shock, internal congestion, or hæmorrhage. It, too, renders the occurrence of ventral hernia less frequent. That there is a tendency to the harmful habit of wearing it too tight after the first few weeks, and to wear it too continuously, there can be no doubt. Frequent turning of the patient upon the side after the section has been recommended. It appears reasonable that this would tend to prevent adhesions, and I am now in the habit of having the nurse turn the patient upon the side, where she can lie as long as comfortable, commencing twenty-four hours after the operation is completed. Some patients will not tolerate this, but with many it is a source of comfort. I have observed no ill effects following the procedure.

Massage has also been recommended in cases where the pain is persistently localized at the same point, and there is a suspicion of the formation of adhesions. I doubt not this might be beneficial in some instances, yet the employment of this method must favor the separation of the incision and tend to induce ventral hernia, and I would fear its harmful influence if there were localized peritonitis. An early action of the bowels results in benefit to the patient in so many ways that I have sought to obtain one in all cases, unless it is specially contraindicated. Not the least of these benefits is the prevention of adhesions. When all the precautions I have mentioned are adopted, intestinal occlusion will not often occur. The question of the administration of cathartics in cases of suspected or threatened occlusion is one oftentimes difficult to decide. Under such circumstances, I am inclined to the belief that during the first week after section cathartics are indicated, and I pre-

fer to administer one-grain doses of calomel every hour for a few times, then to administer doses of Epsom salts every two hours until an action is obtained or it is demonstrated that a harmful effect is being produced. Several times during the last year we have been enabled to overcome difficulties that seemed grave and threatening to the life of the patient because of temporary occlusion. In one instance the patient had been condemned to operation or death. High injections and opium had been used to no avail; calomel and sweet oil induced an action of the bowels, and a prompt recovery of the patient took place. When it is demonstrated that complete obstruction is already present, of course cathartics are harmful; then high injections of hot water or gas may be tried; but little can be expected of them. Opium may be indicated for the relief of pain, but can effect nothing in the way of overcoming occlusion of the bowels following abdominal section. In this malady the vast majority of patients will die, unless resort is early had to reopening the abdomen and removal of the cause of the obstruction. Even with such active interference the majority of the patients will die. It, however, affords the patient the greatest chance of recovery. No specific directions can be given as to the method of procedure on reopening the abdomen. A distinct understanding of the pathological conditions possibly present must guide the operator in his search for the cause of the occlusion, and, when found, it should be dealt with in the shortest possible time consistent with the permanent cure of the patient.

A NEW AND NON-OPERATIVE METHOD OF TREATING DYSMENORRHEA, PELVIC INFLAMMATION, AND PELVIC ABSCESS.*

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Not only less and better surgery but more radical therapeutics should be the aim of all modern gynecologists. The therapeutics of gynecology is practically limited to the application of boroglyceride tampons and the ordering of hot vaginal douches, along with a few other minor measures; and standard works on medical gynecology are comparatively few in number and rather disappointing in their contents. They seem to be seldom utilized by the profession, and are probably relegated to the top shelf of the library. The so-called conservatives, while decrying excessive zeal in surgical interference, seem to have done little or nothing to offset it, but have simply taken their fees in many cases without giving the patients much, if any, appreciable benefit.

This subject of medical gynecology is revived for the purpose of bringing forward and emphasizing the importance of a therapeutical resource that has hitherto, so far as I am aware, been unknown or entirely neglected—viz., the depletion of the vessels of the pelvis in inflammatory conditions, first, by the stimulating action of hot water taken

in rather large quantities on an empty stomach, and, secondly, by the ingestion of a large amount of properly prepared and easily digested nitrogenous food, with a partial abstinence from that which is starchy and saccharine. This might be termed the dietetic treatment of pelvic disease, but it is more than that.

I also give in the subacute and chronic cases, when indicated, the citrate of iron and quinine, and sometimes also Fowler's solution. The latter I find here of special benefit as a strong nerve tonic. It gives tone to the arteries of the uterus, a lack of tone being often a great factor in producing the original disease. Where the appetite and digestion are poor, I order a dozen drops of dilute hydrochloric acid in a glass of water immediately before meals.

The effect of the hot water is to stimulate not only the portal and systemic veins, but also the lymphatic system, and by absorption and endosmosis cause the removal of congestions and inflammations within the pelvis. Exudates and lymph before its organization are absorbed by this process, and, if the inflammation is plastic and not suppurative, the absorption goes on very rapidly. The pus corpuscles, when present, become granular, disintegrate, and are, I believe, absorbed; at any rate, they disappear in most cases along with the inflammation. The improvement in the venous and lymphatic circulation produces a continuous beneficial effect, which in these cases is a great advantage over the intermittent and astringent action of hot vaginal douching and boroglyceride tampons. These local measures may be combined with the hot-water treatment if it is thought necessary.

The effect of a proper nitrogenous diet is to feed and strengthen the heart muscle (which here, indeed, acts as a pump to the congestion) as well as the muscular fibers of the blood vessels and viscera, and, as a consequence, the circulation in the systemic venous system and its appendage—the portal vein—is stimulated. Sometimes, as an intestinal antiseptic, tablets of one one-hundredth of a grain of the bichloride of mercury are very useful, and bitter tonics should also be given if indicated. If there exists, as is usual, stomach and intestinal catarrh, with fermentative dyspepsia, rhubarb-and-soda mixture, in teaspoonful doses, should be given two hours after meals. Before meals, taken in water, it is an excellent detergent, and acts as an artificial bile to the irritated mucous membrane. A few drops of the fluid extract of *hydrastis canadensis* in water is also beneficial. As a vaginal astringent the white extract of *pinus canadensis* should also be used on tampons, or a solution containing five grains each of alum and sulphate of zinc to the ounce of water, with a little glycerin added.

A very advantageous supplementary measure consists in douching the whole of the colon twice daily with a very large quantity of hot water. It is administered from a fountain syringe while the patient lies quietly on her back, resting upon an inflated surgical cushion that drains the water off one side into a receptacle. These colonic flushings are also exceedingly useful in nephritic colic, threatening appendicitis, and many other abdominal diseases. This flushing not only promotes cleanliness by its mechanical effect, but acts as a stimulant by increasing the volume of

* Read before the New York State Medical Association, October 12, 1893.

the circulating fluid, and hence the general vascular tension, and at the same time excites the emunctories to greater activity. If the intestine be flushed with a bland fluid, such as water, most of it is eliminated from the system by the kidneys, as is shown by the increased frequency of urination after such injections. When water is taken by the mouth, if it be not saline, it is almost entirely absorbed.

This method of relieving pelvic congestions has other great advantages; it often removes with remarkable rapidity morbid conditions of the blood and actual structural disease of important organs, such as the stomach, kidneys, heart, and lungs. Many persons are in a state of apparent health, and yet the blood may be so vitiated and full of morbid materials that they are at any moment liable to serious acute disease and to the development of chronic visceral disease. Those who are overloaded with degenerate fat are typical of this class, and here especially this method is of advantage. To women otherwise of sound constitution and good habits, whose diet and hygienic surroundings are of the best, this treatment, properly given, will certainly do no harm, if it does not always remove the local disease. To those whose physical powers have been impaired by excesses or exhausted by labor and anxiety or by scanty and improper diet, and whose nervous systems have been irritated by an excess of stimulating food and drinks, it is of the greatest value. After a course of this treatment under proper hygienic conditions and a freedom from the anxiety of a struggle for daily bread, the pelvic disease rapidly disappears unless the case is one where an operation is absolutely necessary. In that event the patient is in good condition to undergo even the most serious operation with the best prospect of rapid wound healing and freedom from complications.

Let the reader remember the vascular supply and the physiology of the liver and the pelvic organs, and especially the entero-hepatic circulation, or the portal system; it is then easy to see how the greater number of diseases of the uterus, tubes, and ovaries can be relieved in this way. Other means, however, as adjuvants, should not be neglected, and to accomplish these results time, skill, and patience are requisite. Its field of application is in those border-line cases now so frequently operated upon, such as dysmenorrhœa, salpingitis, ovaritis, ovarian and hysterio-epilepsy, ovarian neuralgia, pelvic cellulitis, and pelvic abscess; cases of large cystic or fibroid tumors and cancer are not, of course, in any way benefited.

No one who has not tried this method correctly and faithfully can have any idea of its value in chronic disease; and, like the great painter who mixed his paints "with brains, sir," one must bring his common sense to bear strongly on the subject, and be free from prejudice which is generally begotten of ignorance. I have absolutely demonstrated its great value by a long series of clinical cases. The whole method simply consists in assisting Nature to perform the cure physiologically—i. e., by pelvic venous absorption.

Every physician is or ought to be familiar with the extremely intimate relationship of the digestive and pelvic organs and their mutual interdependence. There is every

reason why the gynecologist should be a well-seasoned physician and that the intimate connection between internal medicine and pelvic disease should be thoroughly appreciated by him. It sometimes seems almost as though medicine was divided into too many specialties. The true specialist must, above all, be a first-class general practitioner; if he is not, he may be well termed a *pseudo-specialist*.

The fact that the body should always be treated as a whole is shown when we know that all the internal organs in the abdominal and pelvic cavity have a common vascular and nervous supply, so that when one of these organs is diseased those that are intimately connected with it suffer at the same time. If one will but think of the intimate connection of digestion with pregnancy and menstruation and the great influence that disturbances of the stomach and liver have upon the uterus and its annexa, and that we never have weakness of one organ without weakness of all, when the weakness is due to deranged nutrition, we can then readily see the intimate connection between the uterus and the digestive system. We should also remember that the blood supply of all these organs being more or less a common one, venous congestion in all of them generally depends upon obstructions in the portal circulation. This is proved clinically in a great variety of instances. Take, for example, a young girl with anæmic dysmenorrhœa. This is wholly dependent on improper assimilation of healthful food, and in the majority of cases the diet and digestive organs are at fault. In cases of hepatic obstruction there is always portal congestion with accompanying chronic metritis, endometritis, pelvic congestions, and leucorrhœa. The same condition may take place when the heart muscle is weak from lack of nourishing nitrogenous food to strengthen it. The digestive tube, with its twenty-seven feet of length, is by far the most important organ in the body, and the moment it becomes irritated and coated with catarrhal mucus the patient begins to suffer.

These catarrhal states of the gastro-intestinal tube are probably the most common pathological condition existing. Catarrh seldom limits itself to one portion of the tract; it generally extends by continuity from the stomach upward to all parts of the nasal and pharyngeal mucous membrane and downward through the intestines to the rectum, and yet often gives but slight warning of its presence. The common term for it is chronic gastro-intestinal catarrh, but a far better one, because truer and more comprehensive, is the old-fashioned one of "catarrhal diathesis."

Most cases of dysmenorrhœa in young girls are dependent on portal congestion and anæmia. Some noted gynecologists deny that endometritis occurs in young virgins from flexions and stenoses retaining the secretions and causing their decomposition, thus inflaming the lining mucous membrane. They are undoubtedly correct, as there is nothing to prevent the liquid blood flowing away, and there is in reality no cavity to retain it.

We must not forget that the liver, which is a most elastic organ, can also be utilized as a muscular pump to draw up the blood through the portal system from the whole pelvic region, and while we are using astringents or

applying tampons soaked with glycerin for its hygroscopic effect, we should also remember that we can get a similar result in the opposite direction by draining the serum and blood from the affected parts through the agency of the intestines and the portal circulation. In these conditions the injection of a small quantity of sulphate of magnesium into the rectum is sometimes very useful. In most cases of chronic metritis and endometritis the condition is very much like that in the rectum when piles exist, and the treatment may be to a certain extent the same or similar.

I am not a believer in the treatment of uterine diseases by excessive drugging; still, I am thoroughly convinced that medical gynecology has been sadly neglected for some years past, and that our next great advances in medical science will include this department.

The uterus is a sensitive organ, and the overdistention of it by dilators for a stenosis which never existed except in the mind of the operator, and the correction of flexions which are normal, the application of strong acids to the interior of the uterus, inflaming its delicate membrane and sealing up the utricular glands, do a good deal toward the production of disease and sterility. Endometritis existing alone is a rather rare condition; it is generally accompanied by salpingitis, pelvic cellulitis, or metritis. If these are removed, the endometrium generally takes care of itself without any local applications. Where the endometritis depends upon vaginitis, this must first be removed before the endometritis will disappear. Unnecessary and unskillful treatment of the endometrium has been the cause of some abdominal sections. We should look at endometritis from above and consider the portal circulation and see if some of the congestion and inflammation and drainage can not be diverted in that direction and removed through that channel.

Almost all ovaries on the post-mortem table look more or less diseased. Of this I have had abundant evidence in the deadhouse on Blackwell's Island. Although simple serous cysts are of extreme frequency, there is still always plenty of sound tissue remaining, showing how the organ could still perform its function normally.

When the operation for the removal of a diseased organ is a dangerous one, as celiotomy always certainly is, in spite of good statistics and brilliant operators, the disease should be incurable by ordinary means and the patient a chronic invalid before the operation should be performed.

The following case is typical and interesting in this connection:

Mrs. L. M., aged twenty-eight years. Pelvic disease came on with a severe chill and fever after her first labor, which was tedious and instrumental. I first saw her several months after this. She was then extremely enfeebled, emaciated, anæmic, and nervous, and had about lost all hope of recovery. She was suffering from frequent attacks of very severe pelvic pain, requiring repeated hypodermics of morphine. Menstruation was absent.

On digital examination, a very tender, throbbing, and boggy tumor was found to the left of the uterus. It was larger than an orange, and fluctuation could be distinctly felt. It could be easily examined through the abdominal wall, and caused great irritation and depression. The result of the treatment by the

hot water and diet, no colonic flushings being given, was to completely relieve the pain and inflammation and to cause absorption of the pus and exudation with the exception of some slight thickening. What gave her the most joy after the removal of the painful attacks was the painless return of her menses after a period of seventeen months, although her baby had always been bottle-fed.

Her recovery was rapid and complete, she being under treatment for less than three weeks. Her physical condition became entirely changed. She had been told by two surgeons that only an operation would relieve her condition, but she declined operative interference.

There can be no question in the mind of any thoughtful physician that galvanism, as recommended by Dr. E. Sanders for the indurations following pelvic cellulitis, is an efficient means of treatment for that condition. His valuable contribution on this subject can be found in the *American Journal of Obstetrics* for March, 1892.

Our advances in abdominal surgery have been marvelous, but we should be careful not to step too far. For the benefit of any who may have forgotten some of their pathology, learned in college days, I would remind them that there is such a thing as the physiological reabsorption of pus. This may be incomplete by a cheesy change or inspissation, and this is a common process, pus being more watery than blood. When complete, the pus entirely disappears after undergoing a fatty metamorphosis or emulsion. Pus is never reabsorbed as pus, but is broken up first into water, salts, and fat, thus becoming completely transformed. This is a matter of vital importance. Prevent the pus from forming if you can, but, when formed, properly remove it. The knife is not always necessary, however, for this purpose. Surgical treatment has here trenched in some instances upon the domain of medicine. The advantage of this method over the knife can be actually seen in abscesses of the lymphatics of the neck, occurring in young patients who have been living on such food as jam, jellies, fresh bread, cake, fruit, and ice cream.

I have also used this method on patients with pelvic abscess and high fever due to septic absorption. They were so emaciated that one could almost encircle the calf of the leg with the thumb and finger; they suffered agonizing pains, and probably could not have stood the shock of an abdominal operation. Their recovery under this treatment was, however, rapid and complete.

The ingestion of an excess of carbohydrate food I believe tends to the development of bacteria in the digestive tract, and wherever pus is present.

In these cases of chronic sepsis there is a great strain upon the kidneys, and hence the water taken is of great benefit. In cases of pyosalpinx with operative interference alone the results are not at all so gratifying as where this method of treatment is employed. When a writer says, in speaking of salpingitis, "If there is suppuration there should be no question as to the propriety of an operation," I disagree with him decidedly. This same writer then goes on to show the advantage of operating in *all* cases by saying: "To ascertain the real benefits of operation for this disease, one must not decide until quite a long period of time has elapsed." No one can say that abdominal sec-

tion is a perfectly safe operation, as it is common for patients to die under it; nor does it always remove the disease along with the tubes and ovaries.

If a patient dies from an operation where proper medical treatment would have readily cured her, what does the white sheet cover? Nothing more or less than a case of scientific murder; but then ignorance excuses a great deal. While we should be conservative, we must not be cowardly.

In the cases of ulcerating appendicitis and other conditions which we find impossible to resolve, and which demand operation, temporizing often leads to a fatal issue. When procrastination is indulged in without reason after proper treatment has failed, the delay probably kills even more in this department than elsewhere. This is notably seen in cases of hernia, where stercoraceous vomiting and collapse are sometimes present before an operation is advised.

NO. 776 MADISON AVENUE.

THE

CLINICAL STUDY OF THE BLOOD IN ANÆMIA.*

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Blood has been well described as a tissue possessing cells and a fluid stroma. With the peculiar characteristics of the latter, its alkalinity or specific gravity, subjects carefully investigated of late, I shall not attempt to deal this evening. The red blood-cell has long been studied assiduously from the standpoints of origin, normal and pathological existence, procreation, and ultimate destiny. In embryonal life the red cells are formed from the endothelium of the blood-vessels and from other red cells containing nuclei. During the latter part of this period the liver and the spleen are endowed with hæmatopoietic functions, as is also the marrow, and nucleated red cells circulate freely in the blood. At birth, however, or shortly thereafter, the spleen and liver relinquish this function and the nucleated red cells are retired from the circulation and exist only in the vaults of the marrow. From this time on nearly all agree that in health the red blood-cells are formed exclusively in the marrow, but there is more diversity of opinion as to the mode of their formation. They probably have their origin from the nucleated red cells there present, either by the budding of their protoplasm (Malassez), or by division of the nucleus and cell with subsequent extrusion of the nucleus (Rindfleisch), or by division, with subsequent disappearance of the nucleus (Foà). These theories are the more plausible in that they are in accord with the fetal methods of formation, concerning which there is a very considerable unanimity of opinion. Denys's proposition that they are formed by budding from the endothelial wall of the venous capillaries of the marrow, and Hayem's dic-

tum that they are derived from the hæmatoblasts, may also be mentioned.

In pathological processes the red cells suffer deterioration in respect to numbers, color, shape, size, resistance to outside influences, capability of forming rouleaux, and the presence of nuclei. These changes, with the exception of nucleation, can be detected in specimens of fresh blood, and furnish invaluable assistance in the detection and diagnosis of disease.

The methods of counting the red cells and of estimating the percentage of hæmoglobin are well known. In short, the use of the hæmocytometer and hæmoglobinometer requires no comment. The chief principle exemplified by those diseases which primarily affect the red cell is contained in the following brief and mathematical proposition: In chlorosis the percentage of red cells is greater than the percentage of hæmoglobin; in simple anæmia the percentage of red cells equals the percentage of hæmoglobin; in pernicious anæmia the percentage of red cells is less than the percentage of hæmoglobin. This, like many other rules, must be allowed its exceptions and must not be accepted too literally, as evidenced by the fact that the exhibition of hæmatinics in any case of anæmia is followed first by an increase in the number of red cells and more tardily by increase in hæmoglobin.

Change in shape is a more intricate matter, as it affects both the circumference and thickness of the cells. Poikilocytosis is the term generally used to denote these changes when they are present to a decided degree and the cells are tailed or kite-shaped or present other marked irregularities. This term and condition are not confined, as was once thought, to pernicious anæmia, but poikilocytosis may be also present in any advanced anæmic condition, whether there be defective formation or increased destruction of the red cells. Schistocytosis is a comparatively new word coined to denote the existence of those poikilocytes which appear to be parts broken off from large cells or the portions of disintegrated cells. Slight changes are evidenced in the loss of the normal clear circular outline or a tendency among all the corpuscles to assume an oval form. Shape is further affected by the presence or absence of the biconcavity of the cell, and cells are found especially in chlorosis where no concavity exists; in fact, the cells are biconvex and in consequence are thicker, contain more hæmoglobin, and both appear and stain deeper in color. Shape as dependent upon decreased resistance will be treated of later.

In normal blood the red cells appear under the microscope to have almost the same size, and when lying side by side present almost the regularity of tessellated pavement. As soon as any deterioration, however, occurs in the condition of the blood the size varies and soon red cells may be divided into microcytes or small cells, normocytes or average cells, and megalocytes or large cells. In chronic secondary conditions microcytes exist in large numbers and the cells average small. In pernicious anæmia, however, the predominance of very large cells or megalocytes becomes one of the diagnostic features. In all moderate conditions of anæmia very considerable variations in size become notice-

* Read before the Section in General Medicine of the New York Academy of Medicine, April 18, 1893.

able and may be the only conspicuous change on inspection. This condition precedes as well as is coexistent with poikilocytosis and is presumably ascribable to poor workmanship in the hæmatopoietic factories, due to the ill-nourished condition of the workmen, an inadequate supply of raw material, and perhaps also to the poverty of the medium in which the product later circulates. The red cell in robust health is not only well formed, but it possesses greater resistance to outside influences. Changes so produced are most familiarly evidenced in the crenation of the corpuscle upon the contact of air, beginning near the edge of the cover glass and extending throughout the specimen. It also includes the swelling and distortion of the cells when exposed to the action of various chemicals in solution. One of the first things which one notices in examining a series of slides from different cases is that crenation takes place in some much earlier than in others. Investigations in this direction have as yet furnished us with no very practical data. In general, it may be said that decreased resistance keeps pace with the advance of the anæmic condition and is presumably dependent upon defective formation or imperfect nutrition of the cells. Cells have their own life period and are doubtless also more vulnerable at certain stages of their career than at others. The chemical constituents of the plasma in various pathological conditions have recently furnished a field for active investigation, especially as before mentioned with reference to the alkalinity and specific gravity; but as the methods employed invade the intricate field of analytical chemistry and present no diagnostic results which can be demonstrated to the eye in microscopical examination, we must omit their consideration. One point of interest with reference to the plasma still remains to be mentioned. While the serum of normal blood has no effect upon the hæmoglobin in the red cells, in pernicious anæmia it is found to readily abstract it from the corpuscle and to be tinged by it, on account of the lighter union between the hæmoglobin and the stroma of the cell. This brings us naturally to the three theories advanced to account for the larger percentage of hæmoglobin than of red cells in this disease, and these we are now in a position to consider as follows:

1. That the individual red cells being larger than the normal average, they contain more hæmoglobin than the same number of cells of average size.
2. That the plasma contains additional hæmoglobin in solution from cells which have been destroyed.
3. That, owing to the lighter union, all and not a part of the hæmoglobin is dissolved out of the cells, and therefore higher results are obtained.

The capability of forming rouleaux seems to be dependent upon several of the foregoing conditions, especially those of form, size, and resistance; for it is at once evident that coins of different denominations, especially if mutilated, would form poor rouleaux. In ordinary chlorosis their formation is good, in moderate anæmia fair, in advanced anæmia poor, and in pernicious anæmia it is lost.

Nucleation is not a characteristic of the normal red corpuscle in extra-uterine life, but its presence is always a sign of a desperate struggle on the part of the hæmato-

poietic organs. The nucleated red cells have been compared to army reserves which are only brought into action when the forces already in the field prove incapable of sustaining a winning fight. Any adult anæmia may show them when it has advanced to a sufficient degree, although they may be rare and require the examination of several slides before one is discovered. But, to continue the simile used above, just as in a sudden attack, when the forces are surprised and the loss of life great, the reserves are more quickly pushed to the front, so in the anæmia following hæmorrhage and in that due to poisoning by arsenic, phosphorus, etc., the nucleated red cells appear quickly and are most numerous. This has been considered a reversion to a fetal type of blood formation, and the idea is somewhat substantiated by the fact that in the anæmias of children, in which such a reversion would be more natural, the nucleated red cell is found earlier and upon less provocation.

Three forms of nucleated red cells are described—microblasts, normoblasts, and megaloblasts or giantoblasts. These will readily be seen to correspond to the three types of non-nucleated cells—microcytes, normocytes, and megalocytes—above described. Of these, the microblasts are of exceedingly rare occurrence. The normoblast is the common form whose occurrence we have just described. The megaloblast, however, deserves special mention, as it is almost pathognomonic of pernicious anæmia. It corresponds to the megalocytes which are so numerous in this disease, and shows, when stained, a larger nucleus than the normoblast. It has not, however, the reproductive power of the latter, for when the nucleus leaves the cell it dies and does not continue to form other red cells; hence their presence does not assist in staying the advancing anæmia and hetokens, wherever they appear, the approaching exhaustion of the blood-forming resources. Nucleated red cells which show the nucleus in the process of division are often found in the late stages of leukemia in large numbers, and more rarely in other conditions. Nucleation can not be made out in fresh blood, and for its recognition both nuclei and protoplasm must be stained.

According to von Limbeck, clinical nomenclature is accustomed to distinguish two classes of anæmia—primary and secondary—those cases being classed as primary where the symptoms of anæmia monopolize the clinical picture, while in secondary anæmia the anæmic symptoms are thrown into the background by those of the organic disease, upon which it depends. Although this division line can not be strictly drawn and we often meet cases in which we are in doubt as to which class they shall be relegated, still, for clinical purposes, such a classification is indispensable. Under the clinical conception of primary anæmia we are accustomed to group—

1. Simple primary anæmia.
2. Progressive pernicious anæmia.
3. Chlorosis.

Each of these divisions presents its own symptomatology, partly dependent upon the condition of the blood and partly upon the disturbances in the various organs. It is the condition of the blood with which we have to deal.

Simple primary anæmia with its wide range of ætiological factors presents both acute and chronic stages. In the acute stage the reduction of red cells and hæmoglobin go side by side as the destruction of a red corpuscle removes a corresponding amount of hæmoglobin from the circulation. Following this there may be a slight increase in the white cells, but these quickly return to the normal and are not a characteristic feature. As the process advances, marked poikilocytosis occurs and nucleated red cells appear. The blood plaques also may be increased.

The general practitioner is still somewhat in the dark as to what cases shall be included under pernicious anæmia, cases of advanced anæmia being constantly so classed which, although progressive and fatal, are manifestly of a secondary and not of an essentially primary nature. The sanguinologist, however, claims that this diagnosis should be limited to cases where the affection is primary or where the coexistent condition can not be held accountable for so advanced an anæmia. He also demands that the condition of the blood should conform to the following standard: In pernicious anæmia the percentage of hæmoglobin, although very low, is higher than that of the red cells. The power of forming rouleaux is lost. There is an astonishing reduction in the number of red corpuscles to below a million, or even below five hundred thousand. Individual red cells may be much distorted, constituting marked poikilocytosis with irregular distribution of the coloring matter in the cell. Degeneration forms and fragments of cells, known as schistocytes, are seen. A large number, however, of the red cells are very large and are known as megalocytes. Nucleated red cells, both of average and very large size (normoblasts and megaloblasts), appear. The number of leucocytes is not increased, but a reduction in their numbers keeps pace with that of the red elements.

Chlorosis has its characteristic clinical picture and a characteristic blood condition, in which latter the red cells remaining on the whole of good size, shape, and especially numbers, the hæmoglobin shows the chief change and is considerably reduced. Thus chlorosis affects chiefly the hæmoglobin, while anæmia affects the red cells. There are undoubtedly some cases of advanced chlorosis with decreased numbers of red cells and poikilocytosis, but these cases are relatively rare and are looked upon as a combination of anæmia with chlorosis. Nucleated red cells only appear in the severer cases. Leucocytosis is not found in pure chlorosis.

Another type of anæmia remains to be mentioned for the sake of completeness. I refer to secondary anæmia. In this, the process having settled down upon a continued morbid basis, the hæmoglobin and red cells are decreased equally, the bulk of the red cells are microcytes, and the mass of the red cells average small. There is leucocytosis, and the large mononuclear leucocytes are increased in numbers. No nucleated red cells are present, spasmodic efforts at regeneration having long since been abandoned. Such a condition accompanies syphilis, hæmorrhage, cancer, tuberculosis. Acute heart cases often give the appearance of anæmia where none exists, due to the bad local tonus of the vessels.

Too often cases are classed as anæmia without inquiry as to an existing cause, the anæmia is treated without success, and the underlying factor disregarded. Anæmia should always lead us to look for incipient phthisis, for cardiac and renal disease, for malignant growths, for causes of disturbed nutrition, for sources of hæmorrhage. Too often valuable time is lost through this omission.

With reference to the treatment of simple anæmia we should not forget the probable existence of an underlying cause or the fact that anæmia is not a local but a systemic disease, that cause and effect are here retro-active, that while malnutrition may cause anæmia, anæmia certainly increases the malnutrition. It is due to these facts that hygiene, dietetics, and hydrotherapy are often as useful as the administration of hæmatinics. It is the combined attack which wins. The anæmic dispensary patient often improves under treatment; the same patient in the hospital almost invariably does so, because of environment, diet, and rest in addition to medicinal treatment.

The use of iron to restore the hæmoglobin is accepted. The indications for arsenic are not as well understood. I have seen the blood of patients who had been receiving increasing doses of arsenic remain in the sealed chamber or subjected to the three per cent. salt solution of the usual Thoma-Zeiss hæmocytometer for hours without crenation. As the result of repeated examinations of the blood of such patients, I believe that arsenic exerts its chief action upon the blood-forming organs, where by their product the red blood-cell is rendered of better quality and of greater resistance.

19 WEST FORTY-SIXTH STREET.

A STUDY OF THE USE OF BORAX IN EPILEPSY, WITH THE REPORT OF A CASE.

By EDWARD A. WELCH, B.S., M.D.,
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On May 7, 1892, I was called to see Miss L. P., aged thirty-eight years. Found her subject to nocturnal epilepsy (epilepsia major), which had troubled her from early childhood and for which she had been under almost constant drug treatment with no permanent relief. The disorder was said to have originated after some slight head injury received [this causation must be a matter of doubt], and the attacks had occurred at irregular intervals since, some of the time two, three, and four times a night, with occasional remissions under bromide and other treatment. The mental faculties, at the start normal, had become much impaired the woman being childlike in actions and apparently in thought, though capable of doing ordinary housework under supervision. She was gloomy, irritable, and melancholy.

From the history given me, I judge that at an early stage in the disease treatment by bromides, potassium iodide, etc., had been tried by the attending physicians. Often there had seemed to be temporary improvement for a few weeks, but soon (possibly from acquired tolerance of the drug used) the patient would relapse to her former state. At last the family adopted the prescription of a well-known local practitioner, and for some years had been dosing the woman with a mixture

of potassium bromide and potassium iodide—satisfied if the epileptic attacks did not occur more often than once each night. As a result, symptoms of bromidism—acne, fetid breath, coated tongue, heart's action rather slow and feeble, muscular movements tremulous—were present. The digestive and excretory functions were much disturbed.

It was, in truth, for relief of the disordered digestion that I was called to the case, as almost anorexia had ensued, with concomitant alarming weakness; the epileptic condition was regarded as past all mending.

Treatment.—Bromide mixture stopped at once. Liquid diet for two weeks, ingestion of plenty of hot water every morning, preliminary cleaning out of effete matter by a quart of a grain of calomel every hour for six doses, *pepsin*, *nux vomica*, and *bismuth*, with occasionally the addition of powdered charcoal in appropriate doses after each meal,* soon improved the digestion greatly. I then determined to endeavor to at least alleviate the epileptic condition, which had manifested itself by two and three attacks each night for some weeks before and also during the treatment detailed above.

Both reading and a little previous experience led to hopes that the use of borax might be beneficial. Accordingly I administered at 12 noon and at 4 and 8 P. M. powders of sodium baborate, ten grains in a third of a glass of water. This makes rather a nauseous drink, but was not objected to by the patient, whose taste was quite effectually blunted by the long course of bromide. Later on I found that the addition of some aromatic, such as ginger or cinnamon, improved the taste. No other drug was given. All easily digested food was allowed. No improvement was noted for nine days, and I was strongly tempted to make some addition to the borax, but on the tenth night only a single "fit" was reported. The borax had caused the bowels, ordinarily constipated, to become fairly regular, with one or two soft movements daily. On the twentieth day she was reported to have had "but four attacks during the last week." A temporary loss of appetite at this time was mended by a week's use of half an ounce of the compound syrup of the hypophosphites (N. F.) before each meal.

From June 1st to June 7th there were no attacks. "Better in every way than she has been for three years back," said the parents. On July 9, 1892, my notes say "improvement as regards epileptic attacks still continues; has very few, and these seem less severe and of less length than before. Appetite good."

The noon powder was henceforth omitted. At this time I began to dispense borax purchased at a grocery store. Ten days later I found that the patient had been affected for a week past with choreic movements of the muscles, the spasmodic contractions being often so violent that she would fall helplessly to the floor. I stopped using the commercial borax and gave instead the chemically pure article. Gave a thirtieth of a grain of arsenic bromide three times a day, and the condition gradually mended and has not shown itself since. The later history of this patient is the uneventful one of continued improvement. The borax is given now but once a day, ten grains at 4 P. M.

Epileptic seizures occur but once or twice a month, and these more often at the menstrual epoch. An attack of epidemic influenza in April, 1893, was accompanied by a number of convulsions, but with the subsidence of the acute disease the attacks again ceased.

The result of borax treatment has been so far most gratifying, the patient being better than at any time since the disease became fully established. The mental state shows little im-

provement; nor can it be expected. There seems good ground for hope that longer use of the drug will result in still greater freedom from the nocturnal convulsions.

The ordinary reference books at command of the practicing physician give very brief and meager reports on the use of sodium borate; therefore I here present the results of careful study of the published literature of the drug. Sodium baborate, or borax, has been tried by different observers as a remedy in epilepsy for a number of years. As in the case of all newly applied drugs, a period of enthusiastic use was followed by a period of distrust, and at least one of our leading American authorities casts aside the drug as of no account in epilepsy. Study of reported cases, however, seems to show that, while the drug has its limitations, while its use can never be as generally successful as the bromide treatment, in certain cases great benefit may be derived from it. Reports of little or no benefit come chiefly when it has been used in cases where the attacks occur mostly or wholly by day. The most successful cases are those in which the attacks are nocturnal. It is, of course, a truism that successes are most likely to be published and failures are passed by in silence; but there is on record enough in the way of good results to warrant a careful trial of borax in epilepsy whenever the attacks are chiefly nocturnal, and we may do so with good hope of obtaining relief. In cases where bromide or other drugs have not produced good results we may also try the drug for day attacks, for a few well-authenticated cases of improvement are on record. The bromides must remain as the mainstay of treatment; but in many cases, even when by such treatment we get good results, unless we are fortunate enough to get a speedy cure, there are very apt to follow, sooner or later, certain ill results and disadvantages. Gradual increase in dosage where palliation only is hoped for is the rule, causing disagreeable symptoms which in some cases may make the remedy a source of more annoyance than the convulsions. Not only may "bromism" with its attendant evils follow too thorough saturation of the system with the drug, but when doses within the physiological limit are taken we may get disturbance and loss of appetite with more or less loss of flesh and strength, and often dullness of intellect and mental apathy so marked as at first sight to suggest permanent mental impairment.

If, then, a drug much less noxious, such as borax, can in certain cases be effectively substituted, it is well to use it. It is certainly worth the trial.

Dr. C. F. Folsom (*Boston Medical and Surgical Journal*, 1886) quotes details of two cases in which careful treatment by bromides and other drugs (in the hands of accomplished practitioners, who would be likely to exercise care as regards diet and hygiene) had been of little use, and the bromide not well borne. The administration of borax caused great improvement, the fits being reduced to two in a year and two in eighteen months, respectively. One patient was rescued from a state of isolated invalidism, and was able to enjoy social pleasures. Gowers, in his textbook, recommends borax as useful in some cases where bromide has no influence.

Russel and Taylor (*Lancet*, 1890) give a tabular review

* *B* Pepsini puri, gr. $\frac{1}{2}$; ext. nuc. vom., gr. $\frac{1}{4}$; *bismuth*. subnit., gr. iij in each dose.

of twenty cases treated by them in hospital. In all the bromide treatment had failed. They used the drug in rather larger doses than we are accustomed to—giving forty to sixty grains daily in many instances. Of the twenty patients, five had no fits after beginning treatment, nine were greatly improved, four were slightly improved, and in two no change was noted. Treatment was continued in the more successful cases four to six months, while in some of the cases, where little improvement was made, the borax was stopped in three to six weeks.

Dr. H. S. Hill's case (*Medical News*, 1889) had a duration of eight years; the patient, sixteen years old, had one or two attacks each week. Was put upon ten grains of borax three times a day, and at the time of the report much improvement had been noted for three years, the fits occurring not more than once or twice a month.

Borax is most useful, according to J. D. Munson, in those epileptics with low arterial tension but strong heart action, as the drug seems to constrict the peripheral blood-vessels in a remarkable degree, and so is in a measure antidotal to the condition of cerebral anaemia, which undoubtedly plays a part in the causation of the paroxysms.

As regards dosage, ten grains three times a day has been found sufficient in most cases, although the amount can be largely increased if necessary without evil result. Dr. G. M. Hammond states that if one hundred and twenty grains in the twenty-four hours is not sufficient to control the paroxysms, larger doses will be useless. Digestion will be less interfered with if it is given as far away from meal times as possible. Great care will, of course, be paid to the digestive functions of the patient, and it is to be remembered that overdosing may produce interference with general nutrition. Tonics should be added when indicated. As nausea and vomiting sometimes result from the disagreeable taste of the drug, it may be given in strong coffee, licorice mixture, or combined with aromatics. I have lately tried a compressed tablet containing five grains of borax and half a grain of ginger, which has appeared to work well, no bad result having been yet noticed.

During the administration of the drug certain ill effects may be produced, and should be watched for and guarded against. The first doses sometimes cause diarrhoea, which usually ceases in a few days. Should it continue, or be accompanied with vomiting, appropriate doses (five to ten grains) of bismuth salicylate will be found an effectual corrective.

Folsom noticed a scaly eruption, which disappeared when arsenic was administered. One patient was troubled with vomiting at the commencement of the treatment, but this ceased when aromatics were combined with the borax.

Skin eruptions not infrequently occur, both papular and scarlatinous. A case of the latter ran a course similar to the drug eruptions produced by quinine sulphate, which I reported in the *Medical News*, September, 1891. This eruption is at times followed by desquamation. Féré quotes two cases where an eczematous eruption was produced by thirty grains three times daily, and which faded only on discontinuance of the drug. He considered these ordinary cases of eczema provoked by borax in persons who were

predisposed to that disease. Russel and Taylor observed in one patient, a woman aged twenty-five years, an attack of dry pleurisy. "At no time was there evidence of effusion. The patient had never had a similar attack before, and, as no history could be obtained of any of the usual causes of pleurisy, it might be suggested that the affection of this serous membrane was similar to that which we had seen in skin and mucous membranes, and depended on the biborate of soda." These observers also noticed that several patients complained of sore lips while taking the borax.

Munson reports a case where suppuration of the middle ear was always produced by use of the biborate.

In the case reported in this article the sudden onset of choreic movements was coincident with the use of commercial borax, which may have been impure. To secure best results, I advise the use of sodium biborate of known purity. Dr. H. W. Williams, of Boston, who has made extensive use of borax for many years in his ophthalmic practice, says that, unless care is used, one is liable to get adulterated or impure samples, and he advises buying the crystals rather than the powdered borax. With the exception noted above, I have used the sodium biborate, crystalline, prismatic, chemically pure, obtained through Merck; for, doubtless, lack of result in drug treatment is often due to the use of drugs not up to standard purity or strength.

"HYGIENIC CLOTHING."

By R. C. RUTHERFORD.

In the *New York Medical Journal* of April 23, 1892, there is an article on this subject, by Frank H. Daniels, A. M., M. D., who begins by telling us that "at the present day scientific clothing enters so largely into the modern economy that it is important for us medical men to look back occasionally and review the progress which has been made in this department."

Now, in view of the fact that there are a great many modern economies, it is not easy to see what the doctor means by "the modern economy." The only kind of "modern economy" to which the doctor's language seems applicable is that which is defined to be "the management of a family." If Dr. Daniels is in possession of statistics which warrant him in saying that scientific clothing enters largely into the management of the family, as a rule, he ought by all means to give the world the benefit of them. The most discouraging thing about this question to those who, like Dr. Daniels, appreciate the importance of hygienic clothing, is the difficulty of getting people to consider it from a scientific standpoint at all.

That the doctrine of hygienic clothing is beginning to assert itself in the professional literature of the day (and this is probably what the doctor means) is one of the most gratifying signs of the times. And that this literature is beginning to tell upon the reading public is the great hope of the reformer.

The next queer thing in the doctor's paper is the manner in which he looks back to "review the progress which has been made in this department"—of hygienic

science, one may suppose. He leaps over a period of one hundred years to quote some passages from Count Rumford demonstrating the superiority of wool over *all other materials* of clothing for the human body; and then he bounds back again to light on the "Jaros material," a novelty of the day (consisting chiefly of cotton), as the "practical accomplishment of scientific theories."

The logical connection of this conclusion at one end of the century to the major proposition at the other end of it will be more likely to be appreciated if we supply a few missing links—although, unfortunately for the doctor's notion of "progress," the links themselves are mainly at the two extremes.

Let us see! The doctor says that "an ideal clothing is one which does not interfere with the functional activity of the skin, while *it* at the same time protects *it* against sudden changes of temperature." (The *Italics* are mine.)

Without stopping to particularize the defects of such a definition, I may remark that the doctor himself tells us that as "raw silk can not be used"—for clothing, presumably—"wool stands at the head of our list." And he also quotes the *Medical Record* of January 15, 1887, in confirmation, thus: "There is no doubt that wool stands at the head of the materials out of which clothing is made." And then the doctor adds: "It will be seen from what has been already said that wool answers each one of the requirements of a perfect clothing material in the highest degree."

The reader of the doctor's article will perceive that the properties which put wool at the head of the list as a clothing material supply, by implication, the reasons for rejecting linen and cotton as a clothing material for wear "next the skin."

Now we are prepared to formulate the doctor's logic: The experiments of Count Rumford, Parkes, and Pettenkofer, the testimony of the *Medical Record*, and Dr. Daniels himself establish the fact that "wool answers each one of the requirements of a perfect clothing material in the highest degree"; therefore the Jaros clothing material, consisting of cotton (or silk) and wool, is "the most perfect clothing fabric made." And one may suppose that this last clause is what the doctor means when he says that the Jaros material is "the practical accomplishment of scientific theories." If not that, what? Any one is at liberty to guess.

Taking this as a fair sample of the doctor's method as a logician, I pass to notice some examples of his style as a scientist, with the greater warrant since it is in that capacity, and not as a "tailor," that the doctor appeals to his readers.

He says: "The outer clothing may indeed adorn; the inner must be made on scientific principles, and the latter is of the greatest importance."

From the doctor's exposition of the functions of the skin, it is evident that he wishes to impress upon us the idea of its importance chiefly as a system of drainage and a regulator of animal temperature. And it is on this ground that he insists that the "inner [clothing] must be made on scientific principles"; but, as "the outer

clothing may indeed adorn," it may, inferentially, be made regardless of scientific principles.

Now let me ask the doctor how he would like to have the plumbing of his residence constructed on such a principle? Would he be content to have the drainage to the outer walls of his habitation constructed without reference to the sewerage beyond? Would a sewer main that obstructed the efflux of the refuse and turned it back to his own cellarage and up into his waste pipes, closets, and wash-bowls accord with his idea of a perfect sanitary system of plumbing and sewerage? Or would he admit that the sewerage branch of the sanitation should be made upon scientific principles, as well as the house-drainage portion? And if he would, would he not as readily admit that the outer clothing should be of such material, and so constructed, as to present the least obstruction to the dissipation of the excretions of the skin taken up by the garments next to it?

The doctor's definition of an "ideal clothing" declares that it shall "not interfere with the functional activity of the skin"; but it does not seem to have occurred to him that any portion of the clothing except the "inner" is capable of such interference. Can a physician that is ignorant of this important truth be said to "understand thoroughly what is required of good clothing?"

Let me suggest the following as a substitute for the doctor's definition: A scientific clothing for the human body is one which, in material and construction, should co-operate with the skin as an excretory, an absorbent, a breathing, a digesting, and heat-regulating organ.

The doctor next informs his medical brethren that "the normal skin is an excretory as well as a secretory organ"—as if the distinction were a matter of some importance; and yet he nowhere explains the difference between its secretory and excretory functions, presuming, probably, in that respect, upon the intelligence of his professional hearers. Or possibly it occurred to him that its secretory and its excretory action are identical—that is, its secretions are its excretions. Or, if the doctor means that its secretions are the contents of the perspiratory glands and its excretions the excreted perspiration, why does he proceed to inform us that, "if the skin is not acting normally, its excretions are taken care of by the other excretory organs—viz., lungs, kidneys, and bowels"? Surely the lungs, kidneys, and bowels are not going to bother themselves with excretions that have already been excreted, and they can hardly be called excretions until they have been excreted. Is the doctor's eye so single to the glories of the "Jaros underwear" that it is insensible to so glaring an absurdity? The doctor very properly dwells upon this excretory action of the skin in its relation to the health and well-being of the individual, and by his explanations imparts somewhat of a scientific tone and purpose to his communication. This is followed by quotations (already referred to) from several high authorities—all to the point of the peculiar fitness in all respects of wool as the material for a clothing to insure the normal action of the skin's various functions. But suddenly there comes a suggestion that something is lacking. Close upon the heels of his statement that "wool

answers each one of the requirements of a perfect clothing material in the highest degree," he asserts that "it only remains for us to determine how wool shall be used so as to take the greatest advantage of its properties." If the doctor says what he means, he is quite right in averring that it remains to be determined how wool can take advantage of its own properties, and why it should want to take advantage of them is quite as undetermined. Probably the doctor wanted to say that it remains for us to determine how wool can be used in order to make its properties most available to us. Manifestly there is no need to take advantage of them. But let us go on with the doctor:

"Until recently," he says, "the only woollen fabrics we have been acquainted with practically have been flannel, where [*sic*] the wool is first spun and then woven more or less lightly into a fabric. By this means the value of all the properties which make wool pre-eminent as a clothing fabric is diminished; and laboratory experiments made with wool as it comes from the sheep do not agree with those made on flannel—*i. e.*, spun and woven wool."

Dr. Daniels is quite right in saying that, until recently, the only woollen fabric we have had any knowledge of has been flannel. Yes, *flannel*—the coarse, heavy, rough, old-time flannel of our grandmothers! It was of this kind of flannel that Count Rumford wrote, over a hundred years ago (not recently, observe):

"I have worn it in the hottest climate and in all seasons of the year, and never found the least inconvenience from it."

This is Rumford, as quoted by the doctor. But this that follows is some of the Rumford that the doctor did not quote. Probably the doctor overlooked it, though it was next-door neighbor to the passage cited by him:

"The perspiration of the human body, being absorbed by a thick covering of flannel, is immediately distributed through the whole thickness of the substance, and by that means exposed to a very large surface to be carried off by the atmosphere; and the loss of this watery vapor, which the flannel sustains on the one side by evaporation, being immediately restored from the other, in consequence of the strong attraction between the flannel and this vapor, the pores of the skin are disencumbered, and they are continually surrounded by a dry, warm, and salubrious atmosphere."

"I am astonished that the custom of wearing flannel next the skin should not have prevailed more universally. I am confident it would have prevented a multitude of diseases; and I know of no greater luxury than the comfortable sensation which arises from wearing it, especially after one is a little accustomed to it."

The fact is that these two passages are the meat to the sandwich as prepared for us by Count Rumford. For some reason, in "passing it round," Dr. Daniels has permitted the meat to slip out, and served us with the pastry only. Was it because the doctor perceived that the meat was not amenable to the digestive capacities of a Jaros-wool-lined-cotton-back stomach?

The observations and experiments that demonstrated the truth that "wool answers each one of the requirements

of a perfect clothing" related to these very old-time flannels, vastly inferior to the recent products of our present manufacturers. It was those old-time flannels that "greatly promoted insensible perspiration"; it was those old-time flannels that disencumbered the pores of the skin" and kept them "constantly surrounded by a dry, warm, and salubrious atmosphere." It was those old-time flannels the wearing of which, Count Rumford believed, "would prevent a multitude of diseases." And it is this same old-time flannel which, according to Dr. Daniels, by reason of its "longitudinally" laid fibers, diminishes "the value of all the properties which make wool pre-eminent as a clothing fabric."

Hear him again:

"In order to preserve the absorptive property of wool in the highest degree, the fibers must be arranged with their points against the skin, and not longitudinally, as in a woven fabric."

At first it is the absorptive property that is to be thus preserved; and next we are told that the arrangement preserves "unimpaired all the properties which make wool valuable as a clothing fabric." And then he *recapitulates* the properties in *this way* (the Italics are mine): "It should be hygroscopic, porous, and so loosely woven as to include more or less air in its meshes."

Now, as two of the doctor's *properties*—namely, "should be porous," and "should be loosely woven"—are resolvable into one, "porosity," it is evident that his "all the properties" are only two—hygroscopicity and porosity.

As the "framework" of the Jaros garment is a woven fabric, its meshes—porosity—being formed by fibers "longitudinally" arranged, the property of hygroscopicity, "the absorptive property," is, by the doctor's own statement, diminished—seriously impaired; even the animal temperature being no longer regulated by the fabric, because, according to the doctor, "our bodies lose just as much heat as the moisture in the clothing is capable of absorbing." The doctor should have said "capable of absorbing and dispersing by evaporation."

It is in vain that the doctor tells us:

"The arrangement of the wool is such that, by capillary attraction, perspiration is absorbed and carried to the silk or cotton back, whence it is evaporated into the surrounding atmosphere"; since the silk or cotton back, having its fibers longitudinally arranged, has but a "diminished" absorptive property of taking up and conveying the perspiration to the atmosphere from the hygroscopic wool through to the unhygroscopic silk or cotton.

We have the doctor's word for it that "the material which will retain the least moisture is the best"; and that "woolen fiber is found to answer this purpose more nearly than any other." Therefore, according to the doctor's logic, a little wool with a thick "cotton back" "may be said to be the most perfect clothing fabric made," because it is "unspun wool caught into the mesh [*meshes*] of a loosely knitted cotton back in such a manner as to preserve unimpaired all the properties which make wool valuable as a clothing fabric."

And the "value" of all these properties—that is, all

two of them—"is diminished when the fibers are arranged longitudinally, as in a woven fabric."

It is obvious, from the doctor's own enumeration, that "all the properties which make wool valuable," etc., are hygroscopicity and porosity, and both of these are impaired by the longitudinal arrangement of the fibers, the very arrangement that predominates in the Jaros fabric, and that, too, with a cotton fiber in all respects inferior to wool as a clothing material.

Now, for what conceivable purpose has Dr. Daniels involved himself in this ridiculous snarl of contradictions and absurdities?

It is only recently that the doctor has "had his attention called to it" and tested it; nevertheless, he "must confess that nothing has given him such personal satisfaction and comfort."

As the doctor's hygroscopicity of wool has been seriously impaired by his longitudinality of fiber in the fabric, let us see if we can not restore its integrity by a more consistent process. To recover this property, so essential to the hygienic value of wool, we may have recourse to the doctor's "highly porous Jaros material" and von Ziemssen's "loose texture," in spite of the longitudinal arrangement of their fibers, and then we shall have as a list of "all the properties" (but not according to Dr. Daniels):

1. Hygroscopicity, or "attraction of wool for water in its elastic state—vapor" or "next,
2. Repulsion for water in its liquid state; then,
3. Non-conductivity, relative to heat and electricity, a warmth-preserving property; next,
4. Attraction for atmospheric air, another important factor in the preservation of warmth; next,
5. Repulsion for filth and offensive odors—a self-cleansing property of the animal fiber.

And thus we have five properties which combine to make wool meet all the "requirements of a perfect clothing material in the highest degree"—"which make wool pre-eminent as a clothing fabric" (observe, as a clothing fabric), and all of which are seriously diminished (according to Dr. Daniels) when the fibers of the clothing fabric touch the skin "longitudinally."

But, as we have seen, it is chiefly the absorptive property of wool, its capacity to take up and disperse the moisture of perspiration, that especially suffers from the doctor's longitudinality of contact. So says the doctor; but, unfortunately for the doctor's pretty story, directly the reverse of this is the fact. Any common horse-jockey or stableman could have told him better. When the warmth of the body of perspiring animals is to be especially preserved against a low temperature, the hair, fur, or feathers, as the case may be, automatically adjust themselves to a perpendicular to the skin, thus increasing the air spaces between the fibers and the quantity of air retained by them—a positive obstruction to both absorption and radiation. But when the animal heat is raised to the point of perspiration (sensible perspiration), the hair is laid flat, parallel to the skin, expelling proportionally the interfibril air, and increasing the conditions favorable to capillary attraction and a copious outpouring of perspira-

tion. Probably Dr. Daniels himself, if he is anything of a whip, has more than once boasted that he could drive his mare for miles and "not lay a hair on her." When the cold season approaches, the hairs, the coat of the animal, multiply and lengthen, and stand out straight from the hide; and it is a bad sign for the animal, as denoting a suppressed perspiration, and fever, when the hair so stands out in warm weather. Capillary attraction is the most effective, and perspiration most abundant, when the hairs are approximated and laid close to the skin, and least so when raised endwise to it, for cold and terror both drive the blood from the skin, blanch the cheek, and make "each particular hair to stand on end, like quills on the fretful porcupine."

When the doctor tells us that "the arrangement of the wool is such that, by capillary attraction, perspiration is absorbed," etc., does he not forget the distinction between hygroscopic and capillary attraction? He would have spared himself some confusion if he had kept well in mind the fact that capillary attraction takes effect upon liquids only, and hygroscopic attraction upon vapors only.

Again, if Dr. Daniels will make the experiment, he will find that it is simply impossible to maintain the woolen fibers of a Jaros shirt in the position of perpendicularity to the skin. The pressure of the slightest contact is sufficient to lay them all flat-long. The fibers that were coarse and stiff enough to keep their ends against the skin would drive the wearer mad in less time than it took the doctor to tell his fanciful story. It is worse than fancy. It is utterly incomprehensible that a professional man, with a pair of titles to his name, could conceive and deliberately pen down statements so utterly at variance with the facts. And yet it is upon this patent and unspeakable absurdity that the Jaros underwear, according to Dr. Daniels, depends for its wonderful hygienic value.

As to the comparative weight of the doctor's authority on this subject, the reader can judge from the following juxtaposed passages:

Count Rumford writes:

"I have worn it [flannel] in the hottest climates and in all seasons of the year, and never found the least inconvenience from it. It is the warm bath of perspiration, confined by the linen shirt, wet with sweat, which renders the summer heats of tropical climates so insupportable; but flannel promotes perspiration and favors its evaporation, and evaporation, as is well known, produces positive cold."

Dr. Daniels writes:

"Until recently the only woolen fabric we have been acquainted with practically has been flannel, where the wool is first spun and then woven more or less tightly into a fabric. By this means the value of all the properties which make wool pre-eminent as a clothing fabric is diminished; and laboratory experiments made with wool as it comes from the sheep do not agree with those made on flannel—i. e., spun and woven wool. In order to preserve the absorptive property of wool in the highest degree, the fibers must be arranged with their points against the skin, and not longitudinally, as in a woven fabric."

For instance, like that worn by Count Rumford "in all climates and at all seasons."

There is an enthusiasm in the doctor's laudation of the Jaros underwear—a zeal for its exaltation over all other woolen fabrics—out of all proportion to a just admiration of the actual measure of scientific truth involved. His facts are not the facts, his language is not the language, of science.

As a sample of Dr. Daniels's perspicuity, logic, literary accuracy, scientific discrimination, and erudition, the following paragraph is given entire:

"While citing perfection attained in clothing materials, we are confronted by the Jaeger material, or stockinet, a loosely-knitted flannel, made of pure wool, and comparing most favorably with the pure knitted woolen garments of the old-established and renowned manufacturers, Cartwright & Warner, of England. Carefully selected wool is, no doubt, the great claim for this fabric, which is well as far as it goes. In the Jaros material, on the contrary, we find a practical accomplishment of scientific theories, the caprice of no one scientist having been followed out, and, in contradistinction to 'systems,' in which the professional world finds nothing new, we have a simple, practical, scientific material."

Can anybody tell what the doctor means by "citing perfection in clothing materials"? Is he "confronted by the Jaeger material" as one of the perfections? Very likely, since it compares favorably with the "Cartwright & Warner" materials. If the Jaeger material is perfect, what more need be asked? But there is an intimation that the only claim, at least the "great claim for this fabric," is "carefully selected wool." But, again, the doctor has just told us that it is a "loosely knitted flannel," meeting the condition of the "highly porous Jaros material" and the "loose texture" of von Ziemssen, according to Dr. Daniels, that constitutes the sole claim (next to longitudinality) of the Jaros fabric—if a fabric can have a claim?

And what does the doctor mean by his "on the contrary"? What are the contraries in these propositions? Is the "practical accomplishment of scientific theories" (whatever that means) the contrary of "carefully selected wool"? Or is "well as far as it goes" the contrary of "scientific theories"? If not, what? And does the doctor wish us to understand that the Jaros material is the result of the "caprice" of two or more scientists "having been followed out"?

It is not the purpose of this paper to disparage the Jaros underwear, but merely to expose the utter futility of Dr. Daniels's attempt to exalt it into pre-eminence over all other underclothing fabrics, especially the Jaeger flannel, which the doctor seems to think menacingly "confronts" him.

Nor, after the exhibit we have made of Dr. Daniels's facts and logic, will it be considered necessary to vindicate Dr. Jaeger from the former's attempt to belittle the latter in order to magnify the Jaros company.

As an estimate of Dr. Jaeger's work and reputation, we give Dr. Daniels's last paragraph:

"I do not wish to be understood as detracting in the least from Prof. Jaeger's due deserts [*sic!*], for he is entitled to great credit for what he has done in insisting upon the value of wool as a material to be worn next the skin. But he is simply re-echoing what Count Rumford said a century ago, [a part of] which I have already quoted to you this evening. He has founded no new system; he simply insists that pure, fine wool is better than the mixtures we have been using."

Dr. Jaeger simply re-echoes what Count Rumford said a century ago—that is, he "simply insists that pure, fine wool is better than the mixtures we have been using." "Only this and nothing more." Is Dr. Daniels willing to so write himself down as a critic of Dr. Jaeger? If he has read Dr. Jaeger's works, he deliberately misrepresents him; if he has not read them, on what ground does he assume the right to criticise him or to characterize his work?

TROPACOCAINE,

THE NEW LOCAL ANÆSTHETIC,
AND ITS USE IN DISEASES OF THE EYE.

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TROPACOCAINE, a comparatively new alkaloid recently isolated by Giesel* from a Java coca plant, which has been investigated physiologically by Chadbourne,† is a local anæsthetic somewhat resembling cocaine in its action and yet differing from it in many points.

Chemically it is benzo-pseudo-tropeine, and, according to Chadbourne, is not to be classed with the "true anæsthetics," which cause ischæmia, nor with the "anæsthetica dolorosa" of Liebrich, which cause irritation and hyperæmia, but is to be considered the physiological connecting link between the two classes.

It has been used by Schweigger and Silex, of Berlin, and the former claims to have performed painless iridectomy in less than two minutes after the instillation of one or two drops of a three-per-cent. solution, while the latter has done a tenotomy without any pain in less than a half-minute after an instillation was made.

Desiring to test for myself its action upon the human eye, I have now used it for several weeks almost to the exclusion of cocaine, and in those cases in which I had previously been employing a four-per-cent. solution of cocaine hydrochloride, with the following results:

When first introduced into the eye there was not the marked ischæmia which followed the introduction of cocaine. There was comparatively no smarting—if dissolved in the normal saline solution, and the preparations used by me were three-per-cent. solutions of the hydrochloride of the base made up with $\frac{1}{10}$ -per-cent. solutions of chloride of sodium, as recommended by Schweigger—and in a short time the anæsthesia was complete. As nearly as I could

* *Pharmaceut. Zeitung*, xxxvi, July 4, 1891.

† *Brit. Med. Jour.*, 1892, vii, p. 402.

estimate, the average time from the instillation until complete anæsthesia of the cornea was produced was about two minutes, though the experiments of Chadbourne make the time a little shorter, and the anæsthetic effect lasted about eight minutes, but could be prolonged by repeating the instillations at various intervals.

The pupil was rarely affected, but in a few cases was slightly dilated, the dilatation being maintained for a short time only. In those cases in which there was response from the pupil the "range" of accommodation was slightly changed, the near point being carried farther from the eye. The vision was made slightly hazy, but there was no paralysis of accommodation; and in the cases in which there was no pupillary response there was no change in the accommodation or acuity of vision.

The palpebral fissure was somewhat enlarged, as is the case with cocaine, but at no time did I observe any ptosis.

I have used it in some minor operations, but do not like it any better than the ordinary cocaine solutions; and as the price of the preparation is so high—being about forty cents a grain wholesale—it is hardly probable that it will come into general use.

For removing foreign bodies from the cornea, or for making strong astringent or caustic applications to the cornea or conjunctiva, it is preferable to cocaine on account of its feeble and infrequent action upon the accommodation, thereby preventing the annoyance of a hazy vision for a time; and in cases of keratitis, when an anæsthetic must be employed, it is to be preferred, as it does not diminish to so great an extent the blood supply.

For other purposes I have not found it superior to the cocaine hydrochloride in general use.

125 NORTH SEVENTEENTH STREET.

The Chicago Pasteur Institute.—The director has issued a circular, dated November 18th, giving the results of the preventive inoculations against hydrophobia practiced in this institution since its inauguration on July 2, 1890. Three hundred and two persons have been treated, classified as follows: One hundred and four bitten by animals recognized and ascertained to be rabid by the experimental proof made in the laboratory or by the death of other persons or of animals bitten by the same animal; 126 bitten by animals recognized to be rabid by the symptoms of the disease shown during life; 72 bitten by animals strongly suspected to be rabid; 282 bitten by dogs, 7 by horses, 7 by cats, 3 by skunks, 2 by wolves, and 1 by a mule. The persons treated came from the following States: One hundred and eighty-five from Illinois, 32 from Iowa, 23 from Indiana, 21 from Kansas, 9 from Ohio, 5 from Missouri, 5 from Arizona, 4 from Minnesota, 4 from Michigan, 4 from Louisiana, 8 from Tennessee, 3 from Kentucky, 2 from Texas, 1 from Wisconsin, and 1 from South Dakota. One death was reported among the patients treated, thus giving a mortality of only 0.33 per cent.

The Death of Dr. Charles W. Rush, of the navy, occurred on the 9th inst., at Annapolis. He was appointed from New York in 1883, and was passed assistant surgeon at the time of his final illness, tubercular phthisis. This disease, which was painful and lingering, had been contracted in the tour of professional duty. He was put on the retired list in June, after having been a year on leave.

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LIFE-SAVING RESULTS OBTAINED THROUGH A STATE
BOARD OF HEALTH.

THE center of all sanitary work in the State of Michigan is its State Board of Health, especially its secretary, Dr. Henry B. Baker. Doubtless there are local health organizations in the State that are doing more or less good work, but Dr. Baker has given shape and force to far the greater part of the sanitary labors in his State, and, if it can be shown that a goodly number of otherwise doomed lives have been saved by those labors, he is deserving of great credit.

The Michigan board began its work in 1874. During the five years previous to that date the average annual death-rate from scarlet fever had been 4.85 in 10,000 inhabitants, but during the fourteen years from 1874 to 1887 the rate was only 2.45 in a 10,000. The rates for small-pox calculated for the same periods of time were 8.5 and 1.9 in 100,000. In the year 1879 a campaign of sanitation against typhoid fever was begun, with the result of saving life, although not in so marked a degree as had apparently been the case in respect to scarlet fever and small-pox. During the decade preceding the establishment of restrictive measures there was an average annual death-rate from typhoid fever of 3.77 in 10,000, while in the decade next ensuing the rate was 3.08 in 10,000.

These statistics are a satisfactory vindication of State board efforts for the prevention of infectious-disease mortality, although the figures are of necessity somewhat small during the earlier years of a restrictive campaign, by reason of the imperfections that attend the inception of such reforms. Apart from considerations as to incomplete plans and a want of experience as to how far it is best to push them, there are those other disadvantages, in the early years of such movements, that flow from want of sympathy and co-operation on the part of others. After a time, when the good results have been demonstrated, it becomes easier to devise and execute such life-saving measures; then the statistics may be expected to make a better showing.

It is the board's purpose to attack consumption in the same way, beginning with the issue of special circulars of information and instruction. Not fewer than 2,500 deaths by consumption occur yearly in Michigan, and it is believed that this mortality can be materially diminished by intelligent measures of prevention, and by educating the people of the State as to the ways by which the disease is spread. On the 30th of September the board unanimously declared consumption to be a dangerous communicable disease and one that must be reported by physicians and householders to the several local boards of health.

Respecting the comparative results obtained in different parts of Michigan, in some of which restriction of the contagious diseases is carried out, as compared with others where this is not the case, it may be said that in the former class of localities the decrease of mortality is marked, especially from diphtheria and scarlet fever. Thus, in 1889, the average number of cases of diphtheria in each outbreak where isolation and other means of prevention were disregarded was 11·66, and that of deaths 2·63; whereas, in other localities, having the advantage of preventive measures, the average of cases was only 1·56 and that of deaths only 0·22—a notable saving of life. Again, take the record of scarlet fever in 1888; there were 11·87 cases of that disease in each outbreak, with an average of 0·54 deaths by that cause, in sections not observing sanitary precautions, while in the other class of places the number of cases was only 2·22 and that of deaths 0·08.

These examples afford a homely yet convincing kind of proof that prevention "pays," not only in the individual localities, but also in the State at large. The workings of these measures of prevention have been most successful in regard to the causes that sacrifice infant life, the so-called diseases of childhood. These are infectious diseases for the most part, and therefore preventable. And this brings to mind the saying of Sir Lyon Playfair, when writing of the sanitary shortcomings of certain Scottish towns: "The death-rate of children in a district is a sort of hygienic barometer of the surrounding physical and moral atmosphere." The barometer of Michigan may be said to be a rising one. Dr. Playfair has defended this care for the progeny of the useful classes in a striking way by comparing the elaborate work that is done by government for the orphan and deficient classes. He has said: "We are not always neglectful. Sometimes we look upon the human infant as a dangerous animal that may turn round and bite us when it grows up." This is said of the child of the dangerous classes. But the children of the productive classes receive no such State care and may grow up dwarfed and relatively unproductive, because civic conditions of overcrowding and ignorance have been permitted to have sway in or about their homes. "If we succeed in getting the homes of our working classes as healthful as the cell of the felon, and surely that should not be considered an unattainable luxury, eight years would be added to the productive ability of our working population."

Let us consider for a moment the money cost to the State of Michigan of the saving of life above referred to. If we mistake not, the average annual cost in twenty years has not exceeded five thousand dollars, inclusive of the salary of the secretary, but exclusive of the printed reports. For a number of years four thousand dollars was the limit of expenditures; afterward the limit was raised to six thousand dollars. The salary of the secretary was two thousand dollars for a number of years, but it has been more liberal in recent years. When we compare this slender outlay with the board's notable achievements it is manifest that few investments have been more profitable to the taxpayer or more creditable to the underpaid, hard-working official.

THE INCONSIDERATE DISMEMBERMENT OF HOSPITAL STAFFS.

At a recent meeting of the Academy of Medicine, Dr. John A. Wyeth spoke upon the subject of the unceremonious dismissal of a member of the visiting staff of the New York Infant Asylum. Dr. Wyeth's expressions appear to us to be dispassionate, moderate, almost judicial in tone. He is reported to have said:

"Within a few months a reputable physician, a member of the Academy, one of the visiting staff of the Infant Asylum, after years of faithful service, was by the president of the board of managers dismissed from the service and another physician appointed to fill his place. No charges of any character were preferred against this physician. There was no question as to his qualification for his faithful performance of his duties. The medical board, which is held responsible for the welfare of the inmates of this institution, was not consulted, either as to the dismissal of this gentleman or as to the appointment of his successor. The medical board, with becoming dignity and self-respect, protested against this action of the managers, and being informed that if they did not like it they could resign, they did resign. I am not one of those who believe in the infallibility of the medical profession. On the contrary, I think they are very fallible and very often wrong, especially in their proneness to suspect an affront to their position or calling when none is intended. I think the gentlemen of the laity who devote their time and money to the support and management of these great charities, in connection with which so many of us labor, are deserving of the utmost praise and consideration and are not second in unselfishness to ourselves. But I do think that in this particular instance an honorable and devoted medical staff have been treated with such disrespect as to amount to an insult to themselves, to the profession in which they have had honorable careers, and that we as a body should resent it. I hold that a principle is at stake—a principle which it is necessary to maintain, not only for our standing in this community (and this I consider of secondary importance), but for the best interests of that unfortunate class, the poor and helpless patients who come under our professional care at the hospitals."

Dr. Wyeth's views were indorsed by many others who took part in the discussion, but for reasons of expediency the Academy did not adopt any resolutions of protest or censure. The members of the medical profession, whose chief solicitude is to see their sick charges do well, are quite content if they receive decent treatment by the laity; they do not exact homage or respect or deference, and a few expressions of gratitude will ordinarily be held to outweigh years of faithful service.

MINOR PARAGRAPHS.

THE TREATMENT OF INTUSSUSCEPTION.

At a meeting of the Pædiatric Section of the New York Academy of Medicine, held on November 9th, Dr. W. E. Forest spoke very strongly against resorting to laparotomy for

intussusception until a thorough attempt had been made at reduction by means of injections. A simple rectal injection, he said, in which the water flowed away as fast as it entered the bowel, was not sufficient, neither were injections by means of a bulb syringe, or any other apparatus by which the pressure could not be regulated, to be relied upon. The use of a siphon of Vichy water had been frequently advised. This was a very unsafe procedure in ordinary hands. The pressure in some siphons was enormous. If the whole force was applied at once to the bowel, it might easily cause rupture. He had performed a careful series of experiments to determine how much pressure the wall of the intestine in health would sustain. He had found that a pressure of eight pounds to the square inch was borne without rupture, and that one of six pounds was perfectly safe. In young children practically every case of intestinal obstruction was a case of intussusception, and in almost every case the intussusception affected the colon. Pressure from above would increase the difficulty. Pressure from below was the only means of reduction. The pressure must be steady, slow, and continuously applied for at least half an hour at a time before attempts at reduction were abandoned. Such pressure did more than could be accomplished by the hands of the operator applied externally. It was applied in every direction; hence the tissues which bounded the invaginated portion of the bowel received their full share of the pressure and were distended, making it much easier for the constricted portion to return to its normal position. It was also elastic pressure, and was not applied along certain narrow lines as in reduction by hand. For obtaining this pressure a fountain syringe should be used. The tip should be bound with bandage to produce a cone-like projection which should fully occlude the rectum. He had found by experiment that each time the bag was elevated two feet and four inches a pressure of one pound to the square inch was added at the outlet. The bag might be held fully twelve or fourteen feet above the patient. Much less pressure, however, should be tried at first. A pressure of six pounds might safely be applied during the first twenty-four or thirty-six hours. After that time it was not safe. Peritonitis, with adhesions and spots of softening, might be formed which would render the use of too much pressure dangerous. He had applied this method in five cases, and in four of them successfully.

EXTERNAL APPLICATIONS OF GUAIACOL IN TUBERCULOSIS.

In a recent issue of the *Medical Week* Professor R. Lépine presents the following conclusions regarding the endermic application of pure guaiacol: 1. External applications of guaiacol are likely to prove extremely useful in certain cases of pyrexia of tubercular origin. 2. The application of from one to two cubic centimetres is practically devoid of all risk of collapse, provided the tubercular process has not reached the stage of supuration and cavity-formation. In the latter case two grammes may cause death, as in a patient under Dr. Bard's observation. 3. Except in cases of extreme irritability of the skin, the application of pure guaiacol is never followed by any inflammatory reaction. 4. The only disadvantages of this method in the earlier stages of pulmonary tuberculosis are profuse sweating, with or without shivering, and a few other symptoms of a very mild description, so that this remedy is to be preferred to antipyrine and even to acetanilide in many cases of phthisis, especially as it has no deleterious influence on digestion. Dr. Lépine agrees with Bard that guaiacol is absolutely without effect on patients suffering from hectic fever due to successive exacerbations of the pneumonic process or to the presence of suppurating ulcerations. On the other hand, it produces a powerful and lasting effect in cases of simple tuber-

cular pyrexia, due to the formation of successive crops of granuloma; in short, whenever the fever is not due to septic infection superadded to the tubercular process. The influence of the guaiacol is largely to be referred to a reflex action on the nerve centers through the peripheral nerve endings, as experiments have demonstrated that the temperature is not affected in animals if the site of application is previously anaesthetized.

THE PROTECTION OF ASYLUMS AGAINST FIRE.

THE asylum branch, at St. Johnland, of the Kings County charities has been reported to be imperfectly guarded against fire. Although the chief buildings comprised in the branch asylum have cost upward of a million of dollars, they have shingle roofs and are within the reach of forest flames. The buildings have hitherto been inadequately supplied with extinguishers. There is a good water supply within reach, and it is now proposed to introduce one or two four-wheeled engines that can be drawn by horses. Extinguishers will soon be placed throughout the corridors of the buildings. This duty of providing the amplest means of fire extinction is an all important one, resting upon trustees, commissioners, wardens, and others, but it is one that is very often deferred, overlooked, and slighted by officials. The newly-appointed commissioners of charities in Kings County have been the officials who have been active in the improvement of which we here write, and they deserve commendation for what they have done. We hold that the medical officials in our various asylums and similar institutions are measurably responsible—although not to the same extent possibly as the executive officials—for the dangerous surroundings of the patients in respect to fire, panic, and the like. We would urge all medical boards to appoint a subcommittee of safety, whose duty it should be to keep records of reported defects in stairways, fire escapes, water supply, and apparatus for the prevention of loss of life by fire.

MALACINE.

Les Nouveaux remèdes for October contains an article relating to this new drug. Dr. A. Jaquet, of Bâle, has made a study of the therapeutic and physiological action of malacine, and finds it an excellent remedy in rheumatism and neuralgic affections. As an antipyretic it is superior to any other of the preparations of this series. It is especially suitable to protracted febrile conditions where it is essential that the remedy shall not be depressing. It is derived from the salicylate of phenacetin. It appears in small crystals of a pale-yellowish color, insoluble in water, but soluble in warm alcohol. The stomach will retain the medicament when no other drug can be borne. It is particularly indicated in cases where the temperature is high and the heart much enfeebled. In rheumatism it can be given almost indiscriminately for a long period without any untoward results. In the treatment of habitual headache the remedy can be prescribed without regard to idiosyncrasies. The dose is from twenty to thirty grains, and the physiological effect continues for about six hours.

NEUROSES AND THE MENOPAUSE.

THE *British Medical Journal* for November 4th contains a report of a meeting of the Medical Society of London at which Dr. Savage read a paper with this title. After a very thorough study of the subject, he concludes that there is a special form of insanity peculiar to the climacteric, which is manifested by progressive symptoms, such as delusions of suspicion, deafness, and general domestic incompatibility. It is suggested that the condition is parallel to general paralysis of the insane affecting

the sensory side, and not so fatal as the disease affecting the more organic side of life. The author admits that the menopause is a minor factor in the production of insanity, but says that the number of women afflicted with insanity admitted into asylums at or after the menopause is greater than at any other corresponding period of time. The prognosis is fairly good, especially in cases where there has been no previous attack of insanity. As yet there is no reliable information as to the subsequent mental condition of patients whose ovaries had been removed.

A TRIBUTE TO THE MEDICAL PROFESSION.

At the annual dinner of the New York Chamber of Commerce on the 21st inst., President Smith, in his opening address, made an acknowledgment of the important aid that had been rendered to the Chamber by the Advisory Committee of Physicians of the New York Academy of Medicine, and paid a graceful tribute to the medical profession in his statement: "It is not too much to say that there is no body of men in the city of New York who give so freely and gratuitously of their time and services to the poor and suffering as do the medical men of New York. If, in the final analysis of human actions, character is the standard of success or failure, then the physicians of New York deserve to wear the laurel wreath."

THE BACTERIOLOGY OF BANK-NOTES AGAIN.

The *Wiener medicinische Wochenschrift* states that the microbe-carrying properties of bank bills have recently been reported upon by two Viennese biologists. The average of a number of examinations of much-handled bank-notes showed that not far from twenty thousand microbes existed on each note. Eight of these were identified as pathogenic, inclusive of the streptococcus of erysipelas, the bacillus of diphtheria, and that of tuberculosis. One of the micro-organisms, not identified with any of the better-known disease germs, was lethal to animals on inoculation.

"ENGLISH CHOLERA."

A recent number of the *Lancet* contains the description of a case of simple cholera the symptoms of which were identical with those of Asiatic cholera. The patient when received at the hospital was in a state of profound collapse. Microscopical examinations of the dejecta had failed to reveal any comma bacilli. Dr. E. A. Snape, who reported the case, said that the close clinical resemblance of such cases with Asiatic cholera pointed out the extreme importance of a bacteriological examination in every suspicious case, for without it an accurate diagnosis was impossible.

ITEMS, ETC.

The late Dr. John C. Peters.—At a meeting of the New York Pathological Society held on Wednesday evening of this week the following resolutions were adopted:

Whereas, It becomes our painful duty to announce the death of Dr. John C. Peters, a founder of the New York Pathological Society, a former president, and for a long period an editor of its *Transactions*; therefore be it

Resolved, That this society desires to place on record its appreciation of his long and valuable services in the different offices in which he served during a period of nearly half a century of continuous membership.

Resolved, That from the first meeting of this society until

his last attendance he has been a tried and faithful servant of its best interests, an ardent promoter of its highest aims, and an active participant in all its progressive doings.

Resolved, That his untiring zeal in the performance of his multifarious duties, his constant courtesy in discussion, his painstaking accuracy of observation, and his ever-available and profound knowledge were qualities that commanded the highest respect of his associates and stimulated the emulation of all who shared the results of his unselfish labors.

Resolved, That the remembrance of his genial disposition, modest manner, energetic spirit, and scholarly attainments will ever serve as a cherished lesson from the well-ordered life of a cultured gentleman, an honored citizen, and a model physician.

GEORGE F. SHRADY, M. D.,

[Signed.]

JOHN H. HINTON, M. D.,

LEWIS A. SAYRE, M. D.,

Committee.

The Medical and Surgical Society of Baltimore.—The programme for the meeting of Thursday evening, the 23d inst., included the following titles: The Theory and Praxis of the Counter-environmental Treatment of Tuberculosis, by Dr. William J. McDowell; Amœbic Dysentery, by Dr. David Streett; Hepatic Abscess, by Dr. J. W. Chambers; and Syphilis, with the Report of a Rare Case with the Primary Lesion in the Nose, by Dr. F. C. Bressler.

The University of Vienna.—The *Wiener klinische Wochenschrift* announces that Dr. M. Kaposi and Dr. J. Neumann have been made ordinary professors of dermatology and syphilography.

The Clinical Society of the New York Post-graduate Medical School and Hospital.—The special order for the meeting of last Saturday evening, the 18th inst., was a paper on The Treatment of Varicocele, by Dr. William B. De Garmo.

The New York Academy of Medicine.—The anniversary discourse will be delivered on Wednesday evening, the 29th inst., by Dr. William H. Thomson, on Modern Experimental Medicine.

Women Physicians in Turkey, according to a dispatch to the *Independent*, have recently been accorded official recognition, largely as the result, it is said, of the American minister's efforts in their behalf.

Changes of Address.—Dr. George W. Caldwell, to No. 45 East Forty-first Street; Dr. Charles T. Poore, to No. 43 West Fifty-third Street.

The Death of Dr. Hermann Hagen, Professor of Entomology at Harvard University, occurred on the 9th inst. He was a medical graduate and for many years a practitioner in Königsberg, Germany. When about fifty years of age he came to America to assume charge of the entomological collections in the Agassiz Museum. His age was seventy-six years. He was a leading authority in the subject of entomology and a member of many learned societies.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 12 to November 18, 1893:*

BREWER, MADISON M., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month on surgeon's certificate of disability, with permission to go beyond the limits of the department.

MUNN, CURTIS E., Major and Surgeon. The leave of absence granted is extended two months.

BIRMINGHAM, HENRY P., Captain and Assistant Surgeon. The leave of absence granted is further extended one month.

FLAGG, CHARLES E. B., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, with permission to apply for an extension of twenty days.

GREENLEAF, CHARLES R., Lieutenant Colonel and Deputy Surgeon General, is relieved from duty in the office of the Surgeon General of the Army, and will repair to San Francisco, California, and assume charge of the medical supply depot in that city, relieving WRIGHT, JOSEPH P., Lieutenant Colonel and Deputy Surgeon General, who, upon being thus relieved, will repair to St. Louis, Missouri, and assume charge of the medical supply depot in that city.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Four Weeks ending November 18, 1893:*

PURVIANCE, GEORGE, Surgeon. To report at Bureau for temporary duty. November 7, 1893. To inspect Reedy Island Quarantine. November 14, 1893.

CARTER, H. R., Surgeon. To proceed to Jessup, Ga., for temporary duty. November 10, 1893.

BANKS, C. E., Passed Assistant Surgeon. To rejoin station, Portland, Me. November 3, 1893.

BROOKS, S. D., Passed Assistant Surgeon. To inspect service at Ashtabula, O., and then to rejoin station, Cleveland, O. November 13, 1893.

McINTOSH, W. P., Passed Assistant Surgeon. Granted leave of absence for twenty-three days. November 17, 1893.

MAGRUDER, G. M., Passed Assistant Surgeon. Granted leave of absence for thirty days. November 1, 1893. To proceed to New Orleans for duty. November 15, 1893.

GOODWIN, H. T., Passed Assistant Surgeon. Leave of absence extended thirty days. October 24, 1893.

CORE, J. O., Passed Assistant Surgeon. Leave of absence extended twenty days. November 14, 1893.

GUITÉRAS, G. M., Passed Assistant Surgeon. Granted leave of absence for thirty days. November 14, 1893.

PERRY, J. C., Passed Assistant Surgeon. To rejoin station, Vineyard Haven, Mass. November 3, 1893.

STEWART, W. J. S., Assistant Surgeon. To proceed to Reedy Island and Delaware Breakwater Quarantine Stations for temporary duty.

STRAYER, EDGAR, Assistant Surgeon. To rejoin station, Boston, Mass. November 3, 1893.

Society Meetings for the Coming Week:

MONDAY, November 27th: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, November 28th: New York Dermatological Society (private); New York Otological Society (private); New York Academy of Medicine (Section in Laryngology and Rhinology); Buffalo Obstetrical Society; Boston Society of Medical Sciences (private).

WEDNESDAY, November 29th: New York Academy of Medicine (anniversary discourse); Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield).

FRIDAY, December 1st: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, December 2d: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Answers to Correspondents:

No. 418.—We have no knowledge of such a practice.

Letters to the Editor.

PUERPERAL ECLAMPSIA.

BUFFALO, November 19, 1893.

To the Editor of the New York Medical Journal:

Sir: In the *New York Medical Journal* for November 18th is an article entitled *A Case of Puerperal Eclampsia at Eight Months and a Half of Pregnancy*, etc., by R. R. Ball, M. D.

May I be permitted to give Dr. Ball some advice as to a procedure that, I think, might have prevented the eclamptic attack in his patient?

In the first place, I should blame her "regular physician," who left her in Dr. Ball's hands, for allowing her to get into the condition in which she was at that time. A careful examination, every two weeks during pregnancy, of the twenty-four hours' excretion of urine will enable us to prevent the development of such a condition.

During ten years' practice of medicine, with considerable obstetric experience, I have never had a case of eclampsia develop, because I have taken the precaution above mentioned, although in six cases I have found albumin and in four of these casts at various times during the pregnancy. In several others I have found diminished urea and even a diminished amount of urine without casts or albumin. In all such cases it is my plan to make use of alkaline mineral waters and potassium acetate, as well as of the saline cathartics, just as Dr. Ball did; but the procedure which has done more than any of these to relieve the uræmic condition has been the use of the steam or the hot-air bath in the manner described in the article on *The Treatment of Renal Insufficiency* which appeared in the *New York Medical Journal* for July 22, 1893.

In all cases of renal insufficiency the skin is the organ of excretion that does the best work when called into marked activity by means of hot air or steam. In this connection I should advise the reading of a monograph on *Puerperal Eclampsia* published some five or six years ago by G. Veit, of Bonn.

DE LANCEY ROCHESTER, M. D.

Proceedings of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Fifteenth Annual Congress, held in New York on Monday, Tuesday, and Wednesday, May 22, 23, and 24, 1893.

The President, Dr. MORRIS J. ASCH, of New York, in the Chair.

(Continued from page 544.)

A Case of Complete Glottic Spasm in an Adult, followed by Unconsciousness and Prolonged Drowsiness.—Dr. W. P. PORCHER related the history of a case of this affection. (To be published.)

Dr. F. I. KNIGHT, of Boston: I am very much interested in cases like the one related by Dr. Porcher. Some time ago I reported a case and collated others in which there was loss of consciousness after prolonged fits of coughing, and it seemed to me that they were due to a disturbance of the cerebral circulation caused by the coughing. Dr. Porcher does not admit that

in his case the loss of consciousness was due to disturbance of the cerebral circulation, and I am inclined to agree with him, I really think it belongs to a different class of cases, and one of which we have not yet got the proper explanation. These cases are of such rare occurrence that a sufficient number of them have not yet been collated to form any definite opinion regarding them.

Dr. J. WRIGHT, of Brooklyn: These cases, I think, must be very rare indeed. I am not aware of more than half a dozen of them on record. While a hospital interne I saw one of them. The case was brought into the hospital unconscious. The patient was gasping for breath and tracheotomy was rapidly done and artificial respiration maintained. Stimulants were injected and the patient made a tedious recovery. She never had another attack, but has had many sudden attacks of aphonia since, probably due to spasm of the abductors, while her serious attack was evidently due to spasm of the adductors. The case was one of hysteria. If we reject the theory of Krause we must suppose a functional paralysis of the abductors in the first attack and of the adductors in later attacks.

Dr. J. W. GLEITSMANN, of New York: I have collected the literature on this subject and reported a case about two years ago. Altogether I have collected about seventeen or eighteen cases. The case I reported was under my observation several years ago. It was one of laryngeal vertigo produced by coughing in consequence of enlargement of the lingual tonsil. The case was treated in the usual manner, the lingual tonsil being repeatedly canterized. The patient improved remarkably and was cured after four or five applications. He is now a strong, healthy man, weighing about two hundred pounds. The attacks of vertigo caused almost complete unconsciousness and in one of them he fell and injured himself. Hypertrophy of the lingual tonsil was the only morbid condition I could find; this produced the fit of coughing, which was followed by laryngeal vertigo.

Dr. W. E. CASSELBEERY, of Chicago: I recall in this connection two quite interesting cases, which, however, do not correspond exactly with the case that has been related to us by Dr. Porcher. It seems to me that one can divide these cases into different classes, having a certain relationship to each other. First, for instance, cases of reflex spasm of the glottis, to which children are predisposed by the presence of acute laryngitis, but which are oftentimes excited reflexly by irritation of the faucial tonsils, the naso-pharyngeal tonsil, or nasal disease. Closely related conditions may extend into adolescence, an interesting example of which was a girl about fifteen years old, who had enlargement of the faucial tonsils and of the naso-pharyngeal adenoid tissue. In this patient I was able on two occasions to produce typical attacks of laryngeal spasm. She sought relief from such attacks, which would occur spontaneously with frequency and would at times culminate in momentary unconsciousness apparently caused by asphyxia and not by a genuine vertigo. The first experimental seizure I produced accidentally by means of a strong naso pharyngeal spray, reflex laryngeal spasm supervening instantly, the stridulous inspiration and asphyxia lasting about half a minute. The following day, for purposes of investigation, I passed a probe behind the velum and caused it to impinge on the adenoid mass, and she passed again into a violent attack of laryngeal spasm, with unconsciousness, and I was hastily getting out my tracheotomy instruments when she recovered. The attack was so alarming that I discontinued my experimental efforts. The removal of this adenoid mass was possible under cocaine, and complete recovery followed.

In another class of cases there is an attack of vertigo—if we choose to call it so—with absolute unconsciousness and with a

slight twitching of the muscles; this is closely related to epilepsy. Such a case recently came under my observation. There was enormous hypertrophy of the trabeculated bodies from the anterior to the posterior ends, without material enlargement of the tonsils. This patient had never suffered from epilepsy until recently, having reached the age of thirty-eight years, when she began to have attacks of glottic spasm with unconsciousness.

We have, therefore, on one hand, the ordinary cases of spasm of the glottis which we may call reflex. Then, closely associated with this, we have spasm of the glottis with epileptoid movements or *petit mal*, and then again we have the true laryngeal vertigo, with spasm of the glottis and unconsciousness, without epileptoid movements.

I usually attribute these cases to reflex irritation, most frequently arising from the faucial tonsils, the naso-pharynx, or the nasal passage. I believe if the nasal tract and other structures are put in thoroughly healthy condition, or as near as possible to it, it affords the best treatment for these phenomena.

Dr. J. N. MACKENZIE, of Baltimore: I should like to ask whether there were present in Dr. Porcher's case any marked symptoms of a central lesion of the nervous system. It seems to me that we must fall back on a central cause for a full explanation of these cases.

Dr. S. W. LANGMAID, of Boston: I should like to say a few words about the diathesis in these cases of laryngeal vertigo. The reflex may proceed from some portion of the digestive tract. So far as my own small experience goes, I should say that that was the common cause. Undoubtedly there are cases in which the reflex is excited by conditions in the naso-pharynx or the upper respiratory tract, but such have not come under my observation. My experience has been that the laryngeal spasm, both in children and in adults, has arisen from some digestive trouble; this is more especially true in adults. I do not know of a surer way of preventing what was formerly called "false croup" in children than by clearing out the intestines. In many such cases it will be found that the children are subject to intestinal trouble or constipation. When I was in general practice I frequently prevented night calls by instituting a course of treatment directed to the digestive tract, thus successfully preventing the recurrence of croup. Several cases have been reported in local journals of laryngeal spasm in adults, and I have always been able to find that such phenomena occurred in gouty individuals.

Dr. JOHN O. ROE, of Rochester: There is one point in the discussion on this subject that has been overlooked, and that is the irritability and sensitiveness of the larynx itself as a cause of laryngeal spasm. In fact, I have come to consider a sensitive condition of the larynx as the predisposing or exciting cause in all cases of laryngeal spasm, and to believe, as Elsberg observed in a paper read before this society in 1884 on Laryngeal Spasm, that "most of the cases of the heretofore so-called 'laryngeal vertigo' are cases of inspiratory, some of them of deglutitory, adductor spasm."

I have observed cases of both inspiratory and deglutitory spasm of the larynx attended by vertigo. In one case of the latter the patient, a lady of neurotic temperament, was so reduced from inability to take food that she could hardly walk. On attempting to swallow any substance, especially solid food, she would have violent laryngeal spasm, and when I first saw her these attacks were frequently so severe that she could only swallow liquid food which had been strained clear of solid particles. In experimenting with her in regard to the production of the spasm, I found that by touching the larynx lightly with a probe, laryngeal spasm would at once be induced.

There was an inflammatory condition about the arytenoids, which was cured, and the laryngeal spasm was entirely relieved by treatment directed to the larynx. A similar case came under my observation a few days ago, in which solid food could not be swallowed without inducing spasm of the larynx, due entirely to irritation about the arytenoids. I have also seen cases of violent laryngeal spasm from nasal irritation. In one case a man had in his nose a neuroma which, if he attempted to pick his nose, produced a violent laryngeal spasm.

Dr. PORCHER: I feel much gratified that the case reported in my paper has elicited such an exhaustive discussion, particularly as I find the literature on this subject is extremely scanty. There have been so many points brought up that it is almost impossible to comment on each one of them. In my thesis to this association I described a case of spasm of the windpipe. The spasm would apparently be complete, the patient would turn blue in the face and remain so for a few seconds, and then regain control of her breathing. There was no unconsciousness following the attacks, but they were usually preceded by violent paroxysms of cough.

The case referred to in my paper to-day I reported chiefly on account of the unconsciousness and the prolonged drowsiness and torpidity of bowels, which proved to my mind that there was brain implication. I think that Dr. Knight and Dr. Mackenzie have touched the keynote when they attribute the disease to a central lesion. So far as the performance of tracheotomy was concerned, I did not find it necessary to do it. In the case of spasm of the larynx above referred to and published in the *Journal of the American Medical Association** the spasm could be brought on with the utmost ease by titillating the posterior pharynx. In accordance with the recommendations of Dr. Lennox Browne, who advises that the treatment should be directed to the pharynx rather than to the larynx, I applied mild solutions of silver nitrate to the posterior pharyngeal wall, and succeeded in gaining such control over it that the spasms did not return. The only case similar to mine, excepting that there was no history of prolonged drowsiness, was the one reported by Dr. Gleitsmann. Dr. Casselberry reported a case in which the spasms were brought on by spraying the throat. I could in my case perhaps have induced the spasms in the same way. My impression is that the exciting cause of the spasm was the introduction of the coffee into the larynx. I am not perfectly certain of that, however; it is simply my impression.

The attacks did not resemble epilepsy, as there was no jerking of the limbs. There was no paralysis of any kind present, nor were there any marked gouty or rheumatic manifestations which I could detect.

(To be continued.)

NEW YORK NEUROLOGICAL SOCIETY.

Meeting of November 7, 1893.

The President, Dr. B. SACHS, in the Chair.

A Demonstration of Lewis's New Method of Staining the Cerebral Cortex.—Dr. IRA VAN GIESON, in a paper on this subject, stated that, notwithstanding our increased knowledge of the structure of the brain cortex, we were still very much in the dark as regarded its finer pathology, for the simple reason that we had not at our command a satisfactory method of showing the finer details of the cortex, and especially the ganglion cells. The ordinary method of examining the brain by immersion in Müller's fluid and subsequent staining with the various dyes was open to many objections. By this method

we gained no knowledge of the finer processes of the ganglion cells or their structure. We could very well imagine, in the light of the wonderful recent advances in cortical histology due to Golgi's methods, the existence of a number of processes in the cortex of the greatest aetiological importance that were entirely hidden from our view by the Müller's-fluid hardening and ordinary staining. Numerous artificial products arose in the hardening process. In staining, after Müller's fluid hardening, we had no view of the ramifications of the nerve cell; we merely saw the cell body. It also induced a change in the volume of the ganglion cells, and, all things taken together, the method was crude when we were searching for any of the finer changes in the cortex, such as we should be led to expect in chorea, epilepsy, etc. Bevan Lewis's new method of staining the cortex was certainly free from these disadvantages. This excellent method had received a very tardy recognition. It was quite simple and did not require much time. Frozen sections of the fresh brain were placed for a few seconds in a solution of osmic acid (one quarter of one per cent.); they were then rinsed in water and stained with aniline blue black (one quarter of one per cent. solution) and again rinsed; they were then allowed to dry on the slide over night. In a section prepared in this way the ganglion cells were free from artificial products, there was no shrinkage, and we got a very much better preserved picture than by Müller's method. The cells were very perfect. Within the past year or two the process of freezing the sections had been much facilitated by the use of carbonic-acid gas and the freezing microtome. [Reference was here made to an article by Dr. Frank B. Mallory in the *Boston Medical and Surgical Journal* for January 26, 1893.] By this process we could freeze a convolution of the brain in three quarters of a minute. The sections were made with an ordinary carpenter's plane.

Dr. Van Gieson exhibited a number of microscopical sections of the brain cortex stained by the method in question. He stated that the literature on this subject could be found in the *American Journal of Insanity* for July, 1892.

Anomalous Cases of General Paresis.—Dr. EDWARD D. FISHER read a paper on this subject. He stated that general paresis might be defined briefly as a disease of the nervous system, especially of the brain, in which pathologically we found a diffuse inflammation of the membranes and cortex of the brain and also of the membranes and systematic tracts of the cord. Typical cases followed a more or less well defined course, the somatic and psychical symptoms going on hand in hand and finally terminating in two or three years in death. Of late years many cases had been reported which differed largely from the ordinary clinical picture. Savage had referred to a type of case in which all the physical signs of the disease were present, but none of the mental or psychical, or only dementia of a simple character. He had found that the course of the disease might often in these cases be protracted, extending over many years. Dr. Fisher said it was not an infrequent experience to have our diagnosis disputed, both by the friends and by the physician in attendance, in this form of the disease, especially as, under proper care, improvement took place, and because the disease was so long protracted. There might in the future be subdivisions made of the general disease as the symptomatology and pathology were better understood. It had suggested itself to the writer that when either alcohol or syphilis seemed to be a prominent exciting or aetiological factor, the so called somatic symptoms were usually the most marked. Another explanation of these cases might be that the prodromal stage was protracted. In fact, the disease as a rule long antedated its first recognition by the friends and the physician. In mental diseases the emotions were probably the first to show evidences of change

* See *Journal of the Am. Med. Assoc.*, vol. xx, Mar. 18, 1893.

This might express itself by undue exhilaration over a slight thing in itself, by depression, by outbursts of irritability, by a disregard for the feelings of others, etc. Or the patient might become careless or show a lack of proper concern in regard to his health or business. On the somatic side we might have evidence of slight motor disturbance, perhaps slight tremor, slowness or clumsiness in speech, or a slightly atactic or spastic gait. In other cases, again, the early symptoms might indicate hypochondriasis, only later on to develop with rapid strides into well-defined general paresis. Dr. Fisher then gave the histories of a few cases of general paresis that had come under his observation which had pursued an anomalous course. In the first case the disease had extended over a period of at least nine years, and in all probability much longer. The second case was that of a man aged thirty-eight years; excepting that he was rather forgetful and had lost interest in his personal affairs to a large extent, no mental symptoms were present. The man had the peculiar fatuous expression common to the disease; there were some tremor of the tongue and slight tremor of the face, the speech was clumsy, and he had had two or three attacks of aphasia of short duration, lasting from several hours to a day. At times there appeared to be great improvement in his condition. This would probably prove to be one of the prolonged types of cases. The man was still under observation.

Dr. Fisher said that, considering these cases and many others to which he could refer in which the course of the disease seemed to be almost arrested or even had not commenced in the usual manner, it must be seen that general paresis, at least in some cases, might be much altered in its course—to such an extent, indeed, as to make the diagnosis doubtful. Some dementia, however, he thought always existed in these cases. Even in the early stages of a classical case, with exaggerated ideas of wealth and ability, we recognized the inconsequence of ideas and responsibility so essentially characteristic of dementia. This latter condition became more apparent if these patients were allowed to engage in their ordinary vocations. It would often be seen when they were removed from hospital care and permitted to resume their business, when improvement took place physically and mentally, that the course of the disease became a rapid one toward physical exhaustion and dementia.

The Relation of Syphilis to General Paresis.—Dr. FREDERICK PETERSON opened a discussion on this subject with a paper. He stated that the question of the position taken by syphilis in the etiology of dementia paralytica was one that had been attracting great attention among syphilologists and alienists of late years. No fewer than seventy authors had contributed to the elucidation of this problem. The majority of these contributions treated of the subject from a statistical standpoint, and it would seem that sufficient data had been collected to fully satisfy all inquiries regarding that particular. Naturally, the first point upon which precise information was needed was as to the percentage of cases of general paralysis with a history of syphilis, and we were now in a position to supply it fully. Although these statistics had differed very materially at times, yet the results in the main agreed. The figures ranged from as low as thirteen per cent. to as high as eighty-eight per cent. Kjellberg had taken the stand that all cases of general paralysis were of syphilitic origin; that the patients were affected either congenitally or through acquisition. This author stood quite alone in his assertion, which was not justified by observation or facts.

Dr. Peterson said his own statistics on this point were rather questionable, as were all obtained from large public asylums to which patients were taken in stages of the disease too far advanced for them to give trustworthy information regarding themselves, and whither they were generally brought

by relatives or officers unacquainted with such an etiological factor in their histories. There had been admitted into the Hudson River State Hospital for the Insane two hundred and eighty-seven patients with general paresis. In fifty-five of these syphilis had been definitely ascertained to have preceded the disorder. In the remaining two hundred and thirty-two it had been either absent or unascertainable. Actually, then, only nineteen per cent. had been found to be syphilitic; but, assuming that one half the others had been affected, the total ratio would be in the neighborhood of sixty per cent. of the cases. At public dispensaries we saw these cases in the earliest stages, when histories might be obtained more exactly. At the Vanderbilt Clinic forty cases of general paresis had been observed (definitely syphilitic, ten; definitely not syphilitic, twelve; unascertained, eighteen). Taking the twenty-two cases in which the exact facts had been obtained, we have 45.4 per cent. certainly syphilitic and 54.5 certainly not syphilitic. From an examination of all the figures collected above from various sources, it would perhaps be fair to assume that about from sixty to seventy per cent. of all cases of general paralysis had a syphilitic history. The fact was thus established that syphilis was a striking etiological factor in general paresis, but that from thirty to forty per cent. of the cases were not syphilitic. A much more difficult problem was to determine the exact relationship between syphilis and general paresis. Was syphilis a direct cause or merely a contributing agent? Was paresis in syphilitic cases a post-syphilitic affection, or was previous syphilis merely a predisposing factor? This problem might be examined from several standpoints. In the first place, there were Lewin's rather remarkable statistics of twenty thousand patients with syphilis, one per cent. of whom had become insane and in whom not a single case of general paresis had developed. Then there was the further fact that among the native Egyptians, with whom syphilis was one of the most widespread of disorders, no case of general paresis had as yet been reported. It was significant, by the way, that alcoholism was seldom or never observed among them. Again, from the pathological standpoint, it was well known that the direct invasion of the brain by syphilis was characterized by changes in the blood-vessels, by the formation of gummata, or by diffuse meningeal infiltration. The first and third of these processes was most frequent in and about the base of the brain; the second was more common in the cortical regions. On the other hand, in general paresis there was chronic meningitis of the convexity, with atrophy of the cortex, and the processes in this disease and in syphilis were quite distinct, although there were cases in which a syphilitic meningo-encephalitis might closely simulate dementia paralytica symptomatically.

There were some who argued that tabes and general paresis were frequently associated, and that, tabes being a form of syphilitic disease, general paresis must consequently owe its origin to syphilis. If the two diseases had the same etiological imprint, there ought to be a close correspondence in the percentages of syphilis in relation to each, but the consensus of opinion seemed to be that a history of syphilis was found in only from sixty to seventy per cent. of cases of general paresis, whereas in tabes the percentage ranged, according to different authorities, from eighty to ninety-eight per cent. At the Vanderbilt Clinic, in eighty-three cases of locomotor ataxia, fifty-one had been syphilitic, twenty not syphilitic, and twelve unascertained. Of the seventy-one patients with tabes of whose specific history we had exact data, over seventy-one per cent. had been syphilitic and over twenty-eight per cent. not syphilitic. Among cases equally well studied and from the same sources, then, 45.4 per cent. of general paralytics had been syphilitic and seventy-one per cent. of tabetics. Dr. Peterson

said he did not agree with the statement made by Dr. Sachs in a recent article that there was a very frequent development of tabes after dementia paralytica and of dementia paralytica after tabes. In cases of paralytic dementia with tabetic symptoms the nerve fibers of the posterior columns were often little, if at all, implicated. One of the facts which had been employed against the opinion that general paresis was a late form of syphilitic disease was the absolute futility of antisyphilitic treatment. In every form of cerebral syphilis proper we were often enabled to accomplish a great deal of good by vigorous and systematic treatment, whereas in general paresis, even if the history of syphilis was clear, no appreciable effect was produced by antisyphilitic remedies.

In concluding his paper, Dr. Peterson said that in his opinion dementia paralytica had no immediate or remote relation to syphilis as a direct cause. Syphilis was a common etiological factor, but only in the sense of its being a predisposing cause. It prepared the soil in more than half of the cases for the development of dementia paralytica, this disorder having its direct causes in alcoholism, sexual excesses, and overstrain of the mental functions. The higher nervous elements were rendered prone to degeneration by the antecedent specific disease, which, as was well known, gave rise to a cachexia with changes in the constitution of the blood.

Dr. W. D. GRANGER said that the question of a change in the character of the mental symptoms of paresis from the standard type of the disease was one that had been very much debated and studied, and it looked as though the outcome of it might be that the disease known as general paralysis of the insane would be found to embrace more than one disease, possibly more than two, the distinction being based upon the clinical aspect and the pathological conditions present. The variations from the ordinary type of the disease, as he had observed them, had not been so marked in this country as abroad. Two or three per cent. would probably cover the melancholic form of paresis in this country, while in England, in some of the largest asylums, the number had risen as high as fifteen or twenty per cent. of the patients admitted. He had seen two forms of the melancholic type of paresis; in one of these the delusions, although they had been those of depression in one sense, had been of grand depression. For instance, a patient had been very much depressed with the idea that he was the devil; he would constantly cover his face and head in order to hide his horns, and carry a newspaper behind him in order to prevent his tail from growing. But he had been the biggest devil, the greatest and the wickedest devil that could be imagined. On the other hand, there were cases of general paresis in which there was simply melancholia with no grand delusions. Another anomalous type of paresis was that in which no special symptoms were present, except progressive dementia and a feeling of satisfaction; this type was becoming more and more common. The question whether the disease was lengthening or shortening in its course was very much discussed; many thought that its course was being shortened, while, on the other hand, according to some of the English asylum reports, it was being lengthened. In this country we still commonly saw the typical form of general paresis, and death took place in about thirty months after the full development of the disease.

In regard to the relation of syphilis to general paresis, Dr. Granger said he agreed very closely to the views expressed by Dr. Peterson. Syphilis itself did not cause the disease, and it was very difficult to tell what did cause it. That syphilis was very common in Egypt, and that venereal excess was also very common there, were acknowledged by everybody, and that general paresis was very uncommon there was also true, but other conditions existed there which the world over were fa-

vorable to the non-development of paresis. These natives possessed neither energy nor ambition, and spent most of their time basking in the sun. In the coal regions in England general paresis was quite common, the percentage in the asylums being from thirty to forty; in the adjoining agricultural districts the percentage fell as low as two or three per cent., and yet probably syphilis and intemperance were very common in both these communities. In this country general paresis rose as high as from fifteen to twenty per cent. in the Eastern States, while in the Western and Southwestern States the percentage was very low indeed. Yet syphilis was undoubtedly very common in the latter localities; so was drunkenness; still, general paresis was very infrequent there. It took something besides syphilis or intemperance to produce the disease. In the cities we called it the strain due to high civilization. In the coal regions we called it the laborious and peculiar life. Syphilis, while it did not cause paresis, was undoubtedly a decided factor in its production. As regarded the value of statistics in this connection, the speaker thought it extremely difficult to get accurate statements from the patients who were sent to asylums, and upon these we were usually dependent for our statistics. The history of syphilis often dated back many years and was extremely untrustworthy.

Dr. SAMUEL B. LYON said he had often been struck with the fact that when a history of syphilis was obtained in a case of general paresis the former disease had usually existed a long time ago. Most of the patients stated that they had been treated for the disease and cured, and that they had had no manifestation of it for many years. During the current year seventeen persons with general paresis had been admitted into the Bloomingdale Asylum; of these, twelve had had a pretty clear history of syphilis. In only one of them had the syphilis been as recent as four years previous to the development of the general paresis. In almost all the cases the patients had probably received the modern treatment for syphilis—that is, mercury and the iodides.

Dr. Lyon agreed with the previous speakers that, while syphilis was not the immediate cause of general paresis, it was one of its provoking causes; it produced instability of the brain, which then yielded to other more immediate causes. These same patients who gave a history of syphilis had for many years led liberal lives. The course of the paresis in these cases seemed to be more rapid than in those uncomplicated by syphilis. The speaker said that cases of paresis of long duration were not unknown—indeed, not very infrequent. He had met with one case in which the disease lasted over ten years. Its duration depended on the patient's constitution.

Dr. MATTHEW D. FIELD referred to the unreliability of statistics obtained from patients affected with general paresis. He had never seen a paretic in whom active syphilitic symptoms existed. The history of syphilis obtained was usually an old one. It was generally combined with a history of alcoholic and venereal excesses. He had made inquiries among those engaged in the treatment of venereal diseases and who had followed up their syphilitic patients for many years, and they had informed him that general paresis was not common among such patients, although it did occur. Dr. Field regarded syphilis as a predisposing rather than a precipitating cause of general paresis. This was also true of alcohol. Magnin said that chronic alcoholism always terminated in dementia or general paresis. The Chinese were well known to be syphilitic—at least those in this country; still, he had only observed one case of paresis among them. That case had been a typical one; the patient had imagined he had thousands of acres of land, thousands of dollars, and thousands of wives—all white. The reports of the asylums in California showed many cases of

insanity among the Chinamen, but no form of paresis. In conclusion, Dr. Field referred to the change of type that seemed to be occurring in dementia paralytica.

Dr. JOSEPH COLLINS inquired on what grounds Dr. Fisher had based the statement that in general paresis due to alcoholism or syphilis the somatic symptoms were supposed to be in the ascendancy over the mental. If such a statement was well founded, it was in contradiction to what was true of the other diseases due to these poisons, wherein mental symptoms were well marked. At the International Medical Congress in Washington some years ago Dr. Savage had referred to a variety of paresis wherein the motor and somatic symptoms had been apparently the only symptoms of the disease for quite a long time. Such a case, Dr. Collins said, was now under his observation. As regarded the statement made by Dr. Peterson that cases of paresis were unknown in Egypt, Otto had recently reported sixteen cases of the disease in that country. So far as the relationship between syphilis and general paresis was concerned, Dr. Collins said he was very much in accord with the statements made by Dr. Peterson. His statistics corresponded very closely with those of Jacobson, taken from the St. Hans Asylum, in Denmark, and it appeared to him that such statistics could be relied upon. The patients in that institution came from within the narrow confines of the state, and Jacobson, in making up the statistics, had ferreted out every possible etiological factor by inquiry regarding the patient's antecedents, friends, etc. The statement made by the French syphilographers and also by Sternberg, of St. Hans Asylum, that there could be no general paresis without a history of syphilis was no longer worthy of credence. We had statistics galore at our command, and it was now time to draw such conclusions as could be drawn from figures. Dr. Peterson's statistics, taken from the Vanderbilt Clinic, were very valuable; the cases had been seen early, had apparently been carefully studied, and were sufficient in number to draw conclusions from. We all admitted that in about sixty per cent. of all cases of general paresis a history of syphilis dating back from a year to twenty years could be obtained. What we wanted to know was the way in which syphilis caused general paresis. In one of the specimens presented by Dr. Van Gieson this evening, a section taken from the brain of a general parietic, the microscope showed a large number of cells collected around a blood-vessel, with some of their protoplasmic prolongations destroyed or atrophied. In the early stages of general paresis there was vaso-motor disturbance, not only in the cortex of the brain, but throughout the whole body. Syphilis might act through its sinister manifestations on the blood-vessels. It caused a pathological condition that was favorable to the development of general paresis. If there were other contributing factors—and in nearly all cases there were—they acted as the torch to the pile that had already been prepared.

Dr. RALPH L. PARSONS, referring to the possible relationship between syphilis and general paresis, stated that, so far as his observation and reading went, the tissue changes that occurred in general paresis did not correspond with those that were produced by syphilis. Furthermore, we knew that general paresis occurred in a certain number of cases in which there was no history of syphilis. His own studies of dementia paralytica had led him to think that the more immediate causes of the disease were emotional conditions, or one might say congestion of the capillaries of the cortex due to overexertion or overstimulation of the nerve cells of the cortex. Syphilis sometimes caused a degeneration of the nerve tissue, but in opposition to this we observed that general paresis occurred usually during the most vigorous period of life. Dr. Parsons said that, while he felt unwilling to make the statement that

there was no possible relationship between syphilis and paresis as cause and effect, such causative relation had not yet been proved.

Dr. WILLIAM M. LESZYNSKY said that in patients who had died from general paresis it had seemed to him that the pathological changes found in the brain had been very much the same in those who gave a history of syphilis and in those in whom a specific history could be positively excluded. Dr. Hinckley, of the Essex County Asylum, at Newark, N. J., had recently sent him some statistics in connection with this subject. The asylum had about five hundred inmates. During the past eight or ten years fifteen cases of general paresis had been received there. Of these, thirteen had been in males and two in females. In only two of these cases had a history of syphilis been obtained, and in those there had been no somatic manifestations of the disease. The causes given in the remaining thirteen cases were alcoholism, overwork, anxiety, etc. In conclusion, Dr. Leszynsky said he agreed with Dr. Peterson in considering syphilis only as a predisposing factor in the production of general paresis.

Dr. A. D. ROCKWELL referred to certain cases of general paresis that had come under his observation in which the patients for temporary periods had been extremely wretched, utterly disregarding all rules of tidiness and decency, but these manifestations after a number of weeks had passed away and the patients had become quite reasonable again.

Dr. C. H. BROWN said he regarded general paresis as a disease of evolution; syphilis, alcoholism, sexual excesses, etc., were merely complications or predisposing factors. He also referred to the difficulty of getting a reliable history of syphilis in these cases.

Dr. FISHER, in reply to Dr. Collins's question as to the ascendancy of the somatic over the mental symptoms in certain cases of general paresis, said he had referred to cases where there was extreme alcoholism or a recent history of syphilis. In such cases, too, there was frequently a more rapid response to treatment; however, they did not, as a rule, go on to complete recovery. While the old typical cases of general paresis were still the ones usually met with, yet anomalous cases were not infrequent. These perhaps in the past would not have been classed as general paresis. He agreed with Dr. Peterson in regarding syphilis simply as a predisposing factor. In cerebral syphilis there might be many symptoms similar to those of general paresis, but the disease did not run a similar course. Asylum reports on this subject must always be regarded with more or less suspicion. In conclusion, Dr. Fisher referred to the futility of antisyphilitic treatment in dementia paralytica.

Dr. J. F. TERRIBERRY referred to the difficulty of properly classifying certain cases in which there were dementia and other symptoms of cortical degeneration.

The PRESIDENT said that too much reliance should not be placed upon the value of statistics in connection with this subject. A few years ago the number of cases of tabes with a syphilitic history had been placed at eighty-seven per cent., and much lower than this by some authorities; now every one was agreed that the figures should have been as high as ninety-two per cent. We all admitted the frequency of syphilis in general paresis, but the majority of the speakers had laid too little stress upon it as a predisposing cause; they had referred to it as the lesser cause. The speaker said he did not agree with them in this. In other mental diseases, in which heredity played an important part, that factor was regarded as a predisposing cause, while an emotional element was regarded as the exciting cause, but the hereditary taint was certainly a hundredfold more important than the latter element. He was of the opinion that syphilis played a more important rôle in general paresis

than any other aetiological factor. Other facts went to prove that syphilis played a very important part in dementia paralytica. Probably in every case of general paresis that occurred in early life, that was between the ages of fifteen and twenty-five years, there was a history of syphilis. The general impression seemed to be that the specific history was one of long standing. While this was true in the majority of cases, it was not so always. A striking instance of this had recently come under his observation. A young man of twenty-two, while a student at Heidelberg, contracted syphilis, and six months after infection he was affected with typical general paresis, from which he was still suffering.

As regarded the possible relationship between tabes and general paresis, the speaker said he had seen a number of cases in which the two diseases had rapidly followed each other. In one case the tabes had developed nine months previous to the general paresis; in that case there had been an undoubted history of syphilis. In one class of parietic patients the knee-jerks were much exaggerated, while in another they were below the normal or entirely absent. In these latter cases the probability was that changes in the posterior columns had occurred, closely related to the changes that were found there in posterior spinal sclerosis.

Dr. PETERSON said that, as regarded the statement made by Dr. Collins about the cases of general paresis found in Egypt, he had not seen the article by Otto referred to. Dr. Sandworth, the physician in charge of the asylum at Cairo, had informed him that neither he nor his predecessor, who had been there for many years, had ever seen a case of general paresis in a native Egyptian. The disease had occurred among the Turkish officials in Egypt, but not among the natives.

With regard to Dr. Sachs's statement as to the relationship between tabes and general paresis, it was of course true that there were often tabetic symptoms in general paresis, and that the knee-jerks might be absent. In the majority of cases, however, in which the knee-jerks were absent in the early stage of the disease, they subsequently returned and became exaggerated. Furthermore, no changes were found in the posterior columns after death from general paresis.

SOCIETY OF THE ALUMNI OF BELLEVUE HOSPITAL.

Meeting of October 3, 1893.

The President, Dr. FREDERICK H. WIGGIN, in the Chair.

A Clinical Paper on some Cases with Various Interesting Features.—Dr. IRVING S. HAYNES read a paper thus entitled. (To be published.)

I. Complete Inversion of the Uterus.—Dr. C. A. BARROWS said that he had never met with this extremely rare condition. The method of reduction employed by the author was certainly a very rational one, for, if the indentation could be made in the uterus so as to carry up the prominent part of it, the very contraction of the circular fibers of the uterus should help to complete the reduction, just as when one pressed in a small rubber ball, after a certain indentation had been produced, the elasticity of the ball completed the reduction. These cases, he believed, were always due to traction on the umbilical cord, either at the time of delivery, from the cord being abnormally short, or from efforts at delivery of the placenta.

Dr. FLINT recalled a case that had occurred in the hospital of partial inversion of the uterus with the placenta *in situ*. The patient had been a colored woman, and no history bearing on the aetiology could be obtained. When first seen the cord had been hanging between the thighs, and the vagina had been filled with clots. The clots had been removed, and the hand

passed in with the expectation of finding the placenta, but, instead, he had felt the fundus of the uterus with the typical cup-shaped depression. It had been a prolapse of the anterior wall.

II. Fracture of the Radius immediately below the Bicipital Tuberosity.—Dr. PARKER SYMS said he had had no experience with fracture of the radius as high as this. He fully agreed with the author in his statement regarding passive motion. He believed in a period of complete rest, and then in slightly active motion, avoiding passive motion. The results were usually better under this treatment.

Dr. W. R. TOWNSEND said that he had only seen one case of fracture of the humerus high up. Last week he had seen a case of fracture at the elbow joint after union had occurred. It was probably originally a "T" fracture. The patient had done well. As was usual in these cases, the fracture was followed by a limitation of motion. The surgeon in attendance had been using passive motion freely, and so much irritation had followed that it was feared osteitis would supervene. Of course, his treatment had consisted in absolute rest. He had already reported a case in which osteitis had really been set up as a result of ill-judged and frequent passive motion; indeed, the family had been so enthusiastic on the subject of passive motion that he had chloroformed the child three times a week in order that he might carry out this treatment. He had persisted in this treatment against advice of counsel, and the child now had an absolutely ankylosed elbow, although when first seen by the speaker there had been about twenty degrees of motion.

Dr. REGINALD H. SAYRE said that many practitioners, instead of putting the arm in full supination, as common sense would seem to dictate, put it up midway between pronation and supination. Full supination approximated the fragments, while the other method necessarily impaired the motion of the arm independently of the formation of osteophytes.

Regarding the question of movement after fractures, there was a time for movement and a time for rest. Where there was any inflammation present rest should be enjoined, but there were times when rest was too much prolonged. Sometimes in elderly people, for instance, after fractures of the elbow, on the removal of the splints, there was not only stiffness of the elbow joint, but also of the shoulder, wrist, and fingers. He had seen such a case last winter; a fracture of the elbow had been recovered from completely and with good result, but after about six weeks, on removing the splint, all these joints had been ankylosed. It had been supposed at that time that the stiffness would be relieved spontaneously, but after waiting a month or two she had come under his care. He had seen other cases of a similar character. He had obtained excellent results in these cases from properly employed passive motion. It was, of course, not very sensible treatment in a case of moderately inflamed joint where the callus was still new, and the bones not thoroughly united, to move it up and down under an anesthetic three times a week. He had seen a great deal of harm done by the improper performance of passive motion.

It was remarkable how opinion on this subject vacillated. One winter we were told to immobilize the fracture and leave it alone, and another winter we were told that no rest should be given, but the joint should be massaged from the very beginning. We should choose between these extremes. It was undoubtedly true that many uninjured joints did become stiff from various causes after prolonged immobilization. For instance, on removing the splints after a fracture of the femur high up, there was usually stiffness of the knee, which was quite persistent. A cure could be very much hastened by proper mas-

sage and movement. The same was true when fracture had been into joints or their immediate neighborhood. It was a mistake to use too frequent or too violent passive motion when inflammation was still present, or union not yet completed; this, of course, tended to produce an exuberant callus and a filling up of the joint cavity.

Dr. HAYNES said that the bodily functions of old people were at a low ebb, and these subjects were prone to get up ankylosis. Besides this, old people were often either rheumatic or gouty, and required constitutional as well as surgical treatment.

We could draw no reliable rules of action from treatment based on experience with old people; we should be rather guided by the results of treatment of young adults or children. The tendency to ankylosis among old people might be avoided, not only by constitutional treatment, but by avoiding unnecessary immobilization of other joints than those directly injured. For instance, in a Colles's fracture he thought it was a mistake to carry the splint down below the wrist joint; from the very first the parts below the wrist should be left perfectly free. This plan would give the best motion. If, on the other hand, they were kept at rest, the tendons were bound down and the stiffness would last for a considerable period.

III. *Intestino-peritoneal Septicæmia*.—Dr. BARROWS asked if there was any laceration of the cervix.

Dr. HAYNES answered that no speculum examination had been made, but there had been no hæmorrhage to indicate such an occurrence.

Dr. BARROWS thought that in most of these cases the avenue of entrance was in the parturient canal, usually at the cervix; for this reason he always carefully examined the os and closed any tear that might be found.

He was interested in the theory of intestino peritoneal infection advanced by the author, for it might be very convenient for all of us to fall back upon. He cited a case in his practice in which there had been a normal temperature for ten days after confinement, and no odor to the discharge; then there had been a chill, followed by acute endometritis and metritis. The interior of the uterus being found in a foul condition, it had been curetted.

Dr. PARKER SYMS agreed with the preceding speaker about cases of this kind. Whenever there was an elevation of temperature after confinement, he always suspected the uterus at once, and he thought in the majority of cases it would be found that the uterus was infected. He also believed that in many glandular inflammations of the breast the trouble originated in the uterus, due to a mild form of sepsis. He was sure he had seen such cases.

Dr. GEORGE P. BIGGS asked why the term "intestino-peritoneal septicæmia" was used. He understood there was simply a fever and no symptoms indicating the involvement of the peritonæum.

Dr. W. N. HUBBARD said he was very glad to hear Dr. Barrows say that infection might occur after the tenth day, for, although this was his own belief, a large number of physicians were inclined to believe that fever occurring after the fifth day was not usually septic, but due to malaria or some other like cause.

Dr. R. H. SAYRE saw no reason why a patient should not have a normal temperature for a week or ten days, and then show signs of sepsis. He recalled a case in which he had amputated the thigh for an osteomyelitis. There had been an absolutely normal temperature for seven days, but on the eighth day there had been a chill, and the temperature had risen to 102°. On removing the dressings, he had found that the central canal had become infected, and he had been obliged to reamputate at a higher level.

Dr. BARROWS referred to a case occurring in the practice of an intimate friend. A woman had had an absolutely normal temperature for the first nine days, and on the tenth day the physician, a well-known obstetrician, had assured her that she was safe. That same evening she had had a chill, developed sepsis, and died. An examination of the uterus had showed septic inflammation.

A woman might have a slight laceration of the cervix which was consequently bathed in the lochia; hence, if some infection entered the vagina and decomposition took place, the septic matter usually entered the lymphatics through this laceration, and not by an extension into the uterus as an endometritis.

Dr. HAYNES said if he had to accept Dr. Barrows's statement *in toto* there would be some elements lacking; for instance, there should have been some foul discharge from the uterus in his case, yet no septic matter had been removed from the uterus by the curette. He could not now recall the condition of the abdomen, and therefore could not say whether or not there had been symptoms of peritonitis.

Dr. BARROWS remarked that the point he desired to emphasize was that the infection might pass through the lymphatics in and about the cervix to the broad ligament and the peritonæum; hence, the uterus might be perfectly sweet in the early stage, and still the patient be really suffering from septicæmia.

Dr. HAYNES said he had read in some reports of the Obstetrical Society of New York that following certain laparotomies there had been intestinal paralysis, with some elevation of temperature, and that this had been all relieved by saline cathartics. The statement was made there that the inflammation was due to the bacilli in the intestine.

IV. *Ventral Hernia*.—Dr. BARROWS said that these cases of ventral hernia were extremely interesting because of the difficulty of effecting a cure. He had seen quite a large number of these cases in women, and he had recently operated upon two or three very large ones in which an incision had been made five or six inches long, and the whole linea alba had been found converted into a cribriform plate—*i. e.*, filled with small openings through which the hernia came. It was better to take out a large V-shaped piece of this fascia, and then separate the planes of the abdominal wall, first bringing together the peritonæum with catgut. Then the fascia should be separated from the muscle, fat, and skin above. He had gone back even three or four inches from the free edge to separate it freely. The homologous structures were brought together very carefully with interrupted sutures of stout catgut. This admitted of the normal motion occurring between the structures composing the abdominal wall. Before adopting this method all his cases had relapsed quickly, but since then he had had one case without relapse after two years, and two or three with no relapse after one year.

Dr. HAYNES said that his patient had also remained well for two years, and possibly might still be well had she not abandoned the abdominal supporter after wearing it for about six months.

Book Notices.

Burdett's Hospital Annual and Year Book of Philanthropy, 1893. Containing a Review of the Position and Requirements and Chapters on the Cost of Management of the Voluntary Charities, and an Exhaustive Record of Hos-

pital Work for the Year. Edited by HENRY C. BURDETT, Author of Hospitals and Asylums of the World, etc. London: The Scientific Press (Limited), 1893. Pp. xciv-510.

MR. BURDETT's works on hospitals are too well known for any particular mention of this one to be required. It will prove exceedingly useful to everybody who has to do with the management of hospitals, the cost of their maintenance, and their officers.

BOOKS, ETC., RECEIVED.

A Practical Treatise on Materia Medica and Therapeutics. By Roberts Bartholow, M. A., M. D., LL. D., Professor of Materia Medica, General Therapeutics, and Hygiene in the Jefferson Medical College of Philadelphia, etc. Eighth Edition, revised and enlarged. New York: D. Appleton and Company, 1893. Pp. xxvii-820. [Price, \$5.]

The Principles and Practice of Surgery. By John Ashurst, Jr., M. D., Barton Professor of Surgery and Professor of Clinical Surgery in the University of Pennsylvania, etc. Sixth Edition, enlarged and thoroughly revised. With a Colored Plate and Six hundred and Fifty-Six Illustrations in the Text. Philadelphia: Lea Brothers & Co., 1893. Pp. xxviii-33 to 1166. [Price, \$6.]

The Medical Student's Manual of Chemistry. By R. A. Wittenhan, A. M., M. D., Professor of Chemistry and Physics in the University of the City of New York, etc. Fourth Edition. New York: William Wood & Co., 1893. Pp. xiii-543. [Price, \$3.75.]

The Blot upon the Brain: Studies in History and Psychology. By William W. Ireland, M. D., Edinburgh, formerly of H. M. Indian Army, etc. Second Edition. New York: G. P. Putnam's Sons, 1893. Pp. viii-388.

Chemistry and Physics. A Manual for Students and Practitioners. By Joseph Struthers, Ph. B., Columbia College School of Mines, New York; D. W. Ward, Ph. B., Columbia College School of Mines, New York; and Charles H. Willmarth, M. S., New York. Series edited by Bern B. Gallaudet, M. D., Demonstrator of Anatomy, College of Physicians and Surgeons, New York. Philadelphia: Lea Brothers & Co., 1893. Pp. vii-17 to 258. [*The Students' Quiz Series.*]

Handbook of Public Health and Demography. By Edward F. Willoughby, M. D. Lond. London and New York: Macmillan and Co., 1893. Pp. xvi-509. [Price, \$1.50.]

Chirurgie des voies urinaires. Études cliniques par le Dr. E. Louneau, Professeur libre de clinique des maladies des voies urinaires, etc. 2me édition. Revue, augmentée et accompagnée de cinq planches hors texte noires et chromolithographiées. Bordeaux: Feret & fils, 1894. Pp. 300.

Transactions of the American Surgical Association. Volume the Eleventh. Edited by De Forest Willard, M. D., Recorder of the Association. Philadelphia: William J. Dornan, 1893. Pp. xvi-372.

The Prevention of Deafness with Instruments invented by Charles A. Bucklin, A. M., M. D., New York. [Reprinted from the *Medical Record*.]

Aural Vertigo (Ménière's Disease). By L. Harrison Mettler, A. M., M. D., Chicago, Ill. [Reprinted from the *Journal of the American Medical Association*.]

Hemiparaplegia; with Report of a Case completely Recovered after One Year's Duration. By L. Harrison Mettler, A. M., M. D., Chicago, Ill. [Reprinted from the *Journal of the American Medical Association*.]

Address to the Profession and the Public. By Dr. J. T. Graham, of Wytheville, Va. Delivered at the Twenty-fourth Annual Session of the Medical Society of Virginia, at Charlottesville, Tuesday, October 3, 1893.

Transactions of the Medical Society of the State of West Virginia. Twenty-sixth Annual Session, held at Parkersburg, W. Va., June 7, 8, and 9, 1893.

Text-book of Normal Histology: including an Account of the Development of the Tissues and of the Organs. By George A. Piersol, M. D., Professor of Anatomy in the University of Pennsylvania. With Four Hundred and Nine Illustrations, of which Three Hundred and Fifty-eight are from Original Drawings by the Author. Philadelphia: J. B. Lippincott Company, 1893. Pp. xviii-11 to 439. [Price, \$3.50.]

Selected Papers in Gynecology and Obstetrics. By D. Berry Hart, M. D., F. R. C. P. E., etc., late President, Edinburgh Obstetrical Society. Edinburgh and London: W. & A. K. Johnston, 1893. Pp. xiv-239.

Manual of the Diseases Peculiar to Women. By James Oliver, M. D. (Edin.), F. R. S. (Edin.), F. L. S., M. R. C. P. (Lond.), Fellow of the Obstetrical Society of London, etc. London: J. & A. Churchill, 1893. Pp. xi-211.

The Pneumatic Cabinet in the Treatment of Pulmonary Phthisis. (Read before the American Climatological Association, Richfield Springs, New York, June 24, 1892.) By C. E. Quimby, A. M., M. D., New York. [Reprinted from the *International Medical Magazine*.]

Poliomyelitis. By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *Texas Medical Journal*.]

A Clinical Lecture on, 1. Case of Poliomyelitis. 2. Case of Chorea. 3. Case of Sacro-iliac Arthritis (probably Rheumatic). By J. T. Eskridge, M. D., Denver, Col. [Reprinted from the *Virginia Medical Monthly*.]

The Primary Action of the Galvanic Current. It increases the Amount of Ozone in the Blood as shown by Chemical Test of the Blood in the Arteries—with our Theory of Animal Electricity. By J. Mount Bleyer, M. D., and M. Milton Weill, M. D., of New York city. (Read before the American Electrotherapeutical Association, Chicago, September 12, 1893.)

Report on Nasal Surgery, with Illustrated Cases. By M. F. Coomes, A. M., M. D., Louisville, Ky. [Reprinted from the *American Practitioner and News*.]

A Case of Panophthalmitis, caused by the Bacillus Coli Communis. By Robert L. Randolph, M. D., of Baltimore, Md. [Reprinted from the *American Journal of the Medical Sciences*.]

Annual Report of the Health Officer of the Port of New York. For the Year 1892.

Greichisch als allgemeine Sprache der Aerzte und Gelehrten überhaupt. Zu Rudolf Virchow's Rectoratsrede: "Lernen und Forschen." Von Dr. Achilles Rose. New York: Gustav E. Stechert, 1893.

The Report of the Department of Pathology of the University College, London, 1892-'93. Together with a Collection of Papers and Abstracts published from the Laboratory. Volume I. Edited by Victor Horsley, F. R. S., F. R. C. S., and Rubert Boyce, M. B.

Miscellany.

The Preliminary Education of Medical Students.—In an address to the students of medicine of St. Mungo's College, Glasgow, by Professor R. T. Kent, published in the *Glasgow Medical Journal* for November, we find the following:

"Can any one pretend that a lad sixteen or seventeen years of age who is leaving school, and perhaps not from a very high class in that school, has received such a liberal education

as will qualify him for entrance into one of the so-called learned professions? In some cases, no doubt, he leaves school at even a more tender age and passes a year or so in the hands of some reverend crammer, and by him is duly crammed through one of the preliminary examinations, and this constitutes his liberal education!

"How," you will ask, 'can such a state of affairs be remedied?' Certainly not by any mere raising of the standard in the entrance examinations. The simple fact of having passed an examination in arts, however difficult, is not in itself any evidence of having received a liberal education, and to merely raise the standard of such examinations would be to play into the hands of the crammers. It is not merely the possession of a certain amount of knowledge in such subjects as classics, mathematics, history, etc., which will properly equip a student for his professional work; it is the training he has undergone in acquiring this knowledge in a proper way and not in having it crammed into him in a few months which constitutes a liberal education, and is likely to be of value to him in after-life. Perhaps it would be as well to define more accurately what is meant by a liberal education. I will quote, therefore, the words of one of the deepest thinkers of the century on this subject: 'That process of training by which the intellect, instead of being formed or sacrificed to some particular or accidental purpose, is disciplined for its own sake for the perception of its own proper object and for its own highest culture is called a liberal education.' Now, such an education, such a process of training, can never be insured by the mere passing of an examination. Surely it is somewhat anomalous that all the examining bodies who grant licenses to practice should lay down more or less stringent regulations as to the course of professional study which must have been pursued, while they allow the greatest possible latitude as to the manner in which the general education of their candidates shall have been conducted. Thus we find that so many months must have been spent in attendance upon anatomy lectures, so many on physiology, etc., and yet the preliminary education, so important in itself, may have been acquired anyhow, so long as a certain examination has been passed, and you are all of you familiar with that long list of examinations which are recognized as qualifying examinations in arts.

"Now, this is scarcely consistent! The examining bodies in laying down these regulations have decreed that it is not sufficient for a student when he comes up to be examined to exhibit a certain amount of knowledge, but they require in addition certificates as to how that knowledge has been gained. They require him to be 'signed up,' as the expression goes, for attendance upon a certain number of lectures and for a certain amount of practical work performed under the superintendence of a recognized teacher. In other words, they try to insure as far as possible that in his professional education the student shall have undergone a certain process of training, but as regards the general education of their candidates they are content to let the matter be settled by the mere passing of any one out of a long list of examinations.

"Now, I am certain that every one who has been brought much into contact with medical students will agree with me that there is the widest possible variation in their attainments as far as general knowledge is concerned, and that the present state of affairs with regard to their preliminary education is eminently unsatisfactory. But it is an exceedingly difficult problem to solve to say how matters could be improved. The first step would, I think, be the fixing of an age limit, and it would be very easy to insist that evidence of having attained a certain age should be produced when first registering as a medical student. What that age should be I would not ven-

ture to suggest, but I think there is much to be said in favor of its being advanced considerably beyond the present average. It would no doubt be of great advantage, both to the students themselves and to that of the medical profession generally, if the only entrance to the profession were a degree in arts from a recognized university. But such a regulation as this might perhaps be too severe and might be held to entail somewhat of a hardship.

"Could we, then, without going quite so far as this, insure that every student before commencing his professional studies shall, in addition to merely passing an examination, have undergone a more or less definite training in arts? I think that this might be possible. We may divide the whole community of medical students into two classes: Firstly, those who at the outset of their career have become members of a university with a view to becoming possessors of that much-coveted degree, M. D.; secondly, those who are only working for the license and to whom a degree, whether in arts or in medicine, is either no desideratum or else is quite beyond their power to obtain. This latter class is more numerous in London than here in Scotland, where the facilities for obtaining a degree in medicine are more numerous and the regulations less exacting. Now, with regard to the former class—namely, those who at the outset of their career have become members of a university—I do not think any hardship would be entailed had they been compelled to go through that course of training which qualifies for a degree in arts of their university before commencing their medical studies. In other words, I would make a degree in arts compulsory upon all candidates for a degree in medicine or surgery, and I would undertake to say that under such circumstances there would not be one medical graduate of five years' standing out of a hundred who would, upon looking back, consider that the time spent over his arts course had necessarily been wasted.

"But with my second class of students, who are not members of any university, the problem is much more complicated.

"We can not, as I say, compel them to go to the universities for their general education, and at the same time we are not justified in assuming, because they can produce evidence of having passed a certain examination, that their preliminary education has been such as is desirable for members of a learned profession.

"There only remains, then, it appears to me, one possible alternative, and that is to approximate, as far as possible, the preliminary training of intending medical students to that required for the arts degree of some university. Thus, in place of one examination, to substitute several, and to insure that a certain time shall elapse after one examination has been passed before admission to the succeeding one; to require evidence not only of having passed examinations, but of having undergone a certain definite course of training; and, at the same time, I am of opinion that greater inducements should be held out to students to more thoroughly prepare themselves for their professional training by undergoing a course of instruction in arts at a university.

"I am aware that some concession is already made to graduates in arts and science, who shall have spent a year in the study of physics, chemistry, and biology, and shall have passed an examination in these subjects, by allowing them to count one year of medical study; but such a meager concession as this is not likely to have much effect in drawing students to the universities, and no doubt it is not intended that it should. In London, you know the great bulk of medical students labor under the disadvantage of having no university available which will grant them degrees upon similar terms to those on which

these are obtainable from the Scottish or Irish universities; and to remedy this, it has been proposed to create what I may call a skeleton university, which shall grant degrees to this large body of students without materially altering that course of study which now qualifies for the license. In other words, because the students at the outset of their career have not gone to the universities, a new university is to be created and brought to the students. Now, I can not think that they who are advocating this scheme are doing so from entirely disinterested motives.

"The value of a university degree has generally been considered to depend upon the fact that it entails a certain period of residence, a certain course of instruction and discipline. We must, of course, make an exception—that exception perhaps which proves the rule, in the case of the University of London, the value of whose degrees rests solely upon the high standard of the examinations. But in this proposed university neither was the standard of the examinations to be so high as that of the present London University, nor was any discipline or training to be required further than is already necessary for the license.

"I am strongly of opinion that if greater inducements were held out to medical students to go in for an arts degree at one of the numerous existing universities, and if, at the same time, the course of preliminary instruction for those who are not members of a university were more closely approximated to that required for such a degree, the demand for new universities would very soon cease to exist, or, at all events, would be very considerably diminished.

"The objection, moreover, which is sometimes urged that the older English universities require an expensive residence to qualify for their degrees has really ceased to have any weight, since the institution of what are now known, both at Oxford and at Cambridge, as unattached students.

"There are some here, no doubt, who will be inclined to think that I am placing too much stress on the value of a liberal education to a medical practitioner. 'Of what use is it,' they will say, 'to us to have spent so many years in the study of classics, mathematics, philosophy, etc., if we can not make use of them in our professional work? All the classics in the world will not teach us how to set a fracture, nor all the mathematics how to treat a case of typhoid.'

"But they forget that the medical practitioner has other than merely professional duties to perform, that he is brought into contact with members of other professions, that he becomes their friend, and very often their confidant; and that it is to his advantage to become not only a skillful practitioner, but a wise and useful citizen.

"That man who has received but little education beyond his professional training, no matter how clever he may be, no matter how successful in his treatment, is in great danger of becoming merely what I may describe as an automatic guinea-in-the-slot machine for the cure of diseases.

"I have read," says Sir William Dalby, in Dr. Chesterfield's letters to his son, 'many charmingly written articles and books on surgical matters; but I have also, for my sins, waded through some others that have positively made me shudder. For lumbering, blundering sentences; for hideous grammatical errors; for long paragraphs, whose construction almost makes one giddy; for the jumbling together of a number of Latinized words, and a complete absence of pure English, commend me to the effusions of an illiterate surgeon.'

Whale's Milk.—The following article appeared several years ago in the *Rockland (Maine) Courier-Gazette*:

Whale's milk is now highly recommended for certain dis-

eases. The only difficulty that we can see in carrying out the idea is in getting the milk. Who will milk the whale? Nobody has ever tried it, and it is not known whether or not the moral nature of the whale will permit such liberties being taken. Of course if you could get a whale of good disposition, one that is kind and affectionate by nature, there would be no difficulty; but suppose you run across a whale that is vicious, and just as you get a pail full of milk she flaps her tail around and catches you in the eye, and then steps in the pail? Though, come to think of it, a whale couldn't step in the pail, because she hasn't any feet—but we don't know as that makes any difference, either, for a yardstick has three feet and it can't step in a pail. But really and truly and no joking, we don't see how this whale-milk industry is to be cultivated. Suppose a man wants to go into it for a speculation, and he advertises in advance that he will supply whale's milk to all kinds of invalids at lowest prices, with reduced rates to clubs. It will be his object, of course, to keep a stock of thoroughbred whales, though grades would not be undesirable. In order to get the best stock, he would have to send a vessel after his whales and lasso a brood in their watery fastnesses. Then he'd tow them into port. Then the only way they could be milked, as it looks to us, would be by a diver, and, as sure as you live, if a stranger went poking around a whale in a suit of diving armor, he'd be certain to tickle her, and that would make her laugh, which would be liable to curdle the milk. But how could he milk into a pail under water? The water would run into the pail in that case as freely as it does in ordinary milking on land, and the result would be milk like that in every-day use, with possibly not quite so much water. Nobody is more friendly than we to new industries of this character, and we are glad to encourage anything that will ameliorate the condition of invalids, but the whale-milk business strikes us as being a trifle far-fetched. Better leave the whale to furnish stiffening for women's dress waists, and let its milk accomplishments remain uncultivated.

Primary Abdominal and Ovarian Gestation.—In the November number of the *Edinburgh Medical Journal* there is an article on the etiology of ectopic gestation by Dr. J. C. Webster, assistant to the professor of midwifery and women's diseases in the University of Edinburgh. The author believes that the adoption of views which imply that the ovum can begin its development only on a tissue capable of a special genetic reaction, and therefore only in some portion of the passages developed from the original Müllerian ducts, makes it difficult to believe in the possibility of the occurrence of primary abdominal gestation. Although, owing to the writings of Bland Sutton, Lawson Tait, and Berry Hart, belief in the existence of such gestation has been widely discredited, no well-founded reason has been raised to show why it should not take place. Indeed, he says, considering the factor which these authors had believed to be of chief importance in the development of tubal gestation—namely, inflammation destroying the epithelium of the mucosa—it does not appear, according to that view, why a fertilized ovum may not attach itself and grow on a part of the wall of the abdominal cavity which has lost its superficial covering of cells by reason of the same pathological process. On other grounds, however, the abdominal intraperitoneal development is improbable, because, so far as is known, the peritoneal tissue can not undergo the changes required for the establishment of the necessary relationship with the young ovum. As regards the ovary, there is still greater difficulty. We have no reason to believe that the Graafian vesicles can respond to the genetic influence, and there is no proof that gestation has ever begun in them. Supposed cases of ovarian gestation require to be studied carefully and in every instance to be distinguished from

the following conditions which may be mistaken for it—namely, gestation in the outer end of the Fallopian tube which has become intimately connected with the ovary; gestation in an accessory tube end which has become attached to it; gestation in an ovarian fimbria, which may sometimes be hollow and represent the extreme outer end of the tube; gestation in a tube which has entered into the ovarian sac of peritonæum, which occasionally occurs in the human subject. The primary development of an ovum in the ovarian sac is as improbable, he adds, as its development in relation to any other part of the peritoneal cavities.

Calomel Soap in the Treatment of Syphilis.—In the *Lyon médical* for October 29th there is an abstract of an article by De Watrazewski, credited to the *Revue des sciences médicales*, in which the author says that calomel soap, while it possesses all the advantages of the traditional gray ointment and the more modern gray soaps, is superior to them in the frictional treatment of syphilis because it is free from the objections attaching to them. Its application is easy and takes little time. It is colorless and odorless, and neither soils the clothing nor irritates the skin. It is prepared by mixing the calomel in a state of vapor with a potash soap in the proportion of one to two or one to three. The amount required for a daily friction is from thirty to forty-five grains, containing from seven to ten or fifteen grains of calomel. The friction itself is substantially the same as with ordinary mercurial ointment.

Balsam of Peru in Gastro-intestinal Diseases of Children.—Dr. Nuggia has contributed an article on this subject to the June number of the *Archivio italiano di pediatria*. It appears by a summary of the article given in the *Revue générale de clinique et de thérapeutique* for November 1st that Trouseau and Pidoux had recommended the remedy in gastro-intestinal catarrh, especially in diarrhoea, with or without tenesmus, in typhoid fever, and in infectious dysentery. The author uses the following mixture: From a grain and a half to three grains (for very young infants) or from five to seven grains (for older children) of balsam of Peru, forty-five grains of alcohol, half an ounce of syrup of lemon, and three ounces of water. He reports successful results from the use of this formula, and says that he has not observed any untoward action of the mixture; nevertheless, it is better not to prolong its administration more than three days, not on account of the balsam of Peru, but on account of the alcohol.

A French Surgeon of the Fourteenth Century.—In the *Mercredi médical* for November 1st we find an account of M. Mondeville, surgeon to Philippe le Bel, who wrote in the beginning of the fourteenth century a treatise on surgery which was a remarkable work, deserving of being read at the present day. This book, the oldest on surgery in the French language, was not printed, as it was written in Latin. M. Nicaise has just published a translation of it in order to make it popular. To give an idea of the author and of his advanced views, says the writer of the article, it is enough to recount what he says of suppuration and of the treatment of wounds. He was the first to maintain that suppuration was a complication to be avoided, and that is the doctrine of the present day. From that he deduced the method of treating wounds. He practiced immediate union and used a dressing of hot or salted wine and protected the wounds from the air, for, as we believed a few years ago, he considered air to be the cause of suppuration. He also devised an antiseptic plaster to be applied to wounds. His treatment of wounds of the large intestine will give an idea of the worth of this pioneer surgeon. He closed the wound in the intestine with the glove's suture, replaced the intestine,

and sewed up the abdominal wall, and if, he said, the operation was done immediately after the wound, a cure was rapid. He has effected it with only one dressing. There was, then, in the fourteenth century an epoch of surgery in which it was sought to combat suppuration and in which the immediate union of wounds was practiced, but this period has until now remained unknown because Mondeville's book was not published.

A Curious Case of Prolonged Fasting.—The *Lyon médical* for October 29th cites from *La Médecine moderne* for October 18th a summary of the following case taken from the Russian newspapers: A girl, seventeen years old, was overtaken by night near the village of Ruzino in the government of Moscow, on the 24th of November, 1892. Being afraid to go home in the dark, she decided to pass the night under a hangar covered with a little straw. During the night a snowstorm occurred, and in the morning the girl found herself unable to escape from the load of snow which covered her. The first day she ate five morsels of bread which she had with her. After that she had no other nourishment than the snow which imprisoned her. It was not until the end of fifty-one days that she was discovered under a bank of snow three feet and a half deep. She was then, on January 14, 1893, taken to a hospital. Although completely exhausted and unable to move a limb, she could answer questions and was conscious of what was going on about her. Her skin was cold and pale and there was general anasarca; the mucous membranes were of a striking pallor; no trace was left of the subcutaneous fat, and the muscles were wasted. Her voice was very feeble; her respiration was 26; her pulse was 84, small and weak; her temperature was 100.4° F. The heart sounds were distinct but feeble, and an anæmic souffle was audible in the vessels of the neck; the urine was concentrated, but contained neither sugar nor albumin. For two days she remained in a state of semi-unconsciousness and somnolence, but she made rapid progress and at the end of the first week she could take the ordinary diet of the hospital. If we suppose that the date of her imprisonment in the snow was correctly stated and that she ate all the bread on the first day, the account goes on to say, this involuntary imitator of Succi must have gone from the 24th of November to the 14th of January, exactly fifty days, without taking any nourishment.

A Superior Method of making Tea.—The *Lyon médical* for October 29th gives the substance of an article published in the *Répertoire de pharmacie* for October 10th. The tea is to be powdered immediately before it is used, boiling water is to be poured upon it (water not too hard), and to be left in contact with it for from five to seven minutes. In this way the aroma is developed in a remarkable degree, the theine is completely extracted, and the resulting infusion contains but a minimum of tannin.

The late Professor Leon Le Fort, of Paris.—*Le Progrès médical* for October 28th gives a biographical sketch of the late Dr. Léon Clément Le Fort, professor of surgery in the Paris Faculty of Medicine, accompanied by a portrait. The death of M. Le Fort took place suddenly during the week preceding the publication of that issue of the journal mentioned. He was born at Lisle in 1829 and took his degree in medicine in 1858. In the following year he served as a medical volunteer in a subordinate capacity in the Italian campaign. In 1861 he was nominated prosecutor to the faculty. He was appointed surgeon to the Hôpital des Enfants-assistés in 1865, to the Midi in 1866, to the Cochin in 1867, to the Lariboisière in 1871, and to the Beaujon in 1872. In 1873 he was made professor of surgery in the Faculty of Medicine. He was a chevalier of the Legion of Honor and a member of many learned societies.

Original Communications.

HISTORICAL NOTES ON
THE QUESTION OF THE VALUE OF TRACTION
IN THE TREATMENT OF HIP DISEASE.*

By A. B. JUDSON, M. D.,

ORTHOPÆDIC SURGEON TO
THE OUT-PATIENT DEPARTMENT OF THE NEW YORK HOSPITAL.

THE treatment of hip disease has greatly changed in the last forty years. It can be still further improved, beyond a doubt, and to prepare for further advance we should keep well in mind the history of the past. As a slight contribution to such history the following summary or outline has been thought worthy of presentation.

The compilation from which the following extracts are taken was made previous to 1883. The reader will therefore not expect to find references to the many and valuable contributions to the literature of the subject which have been made since that date. I regret my inability, for various reasons, to bring these notes up to the present time. Neither can I claim that they are complete for the period which they cover. They are complete only so far as books and papers were readily accessible.

The manuscript compilation above referred to was made in the course of an inquiry as to which of the various opinions concerning traction expressed the correct explanation of its generally recognized good effects. The result of this inquiry—that is, the opinion which seemed to me correct—is noted in its appropriate place.

Incidentally several points of interest came into view. For instance, the word *extension*, used to signify a drawing down or away, has given place to the less ambiguous word traction.† Again, we hear but little of late years of spontaneous dislocation as a feature of hip disease. It was formerly considered an extremely important incident of the late stage, an opinion challenged by Dr. Alden March, who declared that “spontaneous dislocation of the hip (as purely the result of morbid action unaided by superadded violence) seldom or never takes place,” adding that his convictions were “based upon actual observation and personal examination of about forty pathological museums in this country and in Europe.”‡ Dr. George Hayward took the opposite side, saying: “It would require more specimens than would fill forty, or forty thousand, pathological museums to convince me that this [case related] was not a spontaneous dislocation of the femur.”*

The merits of this rather nice question were presently lost in the interesting practical questions which arose when efficient and continuous traction became possible with the introduction of adhesive plaster as a means of grasping the limb. Traction then became useful, not to reduce disloca-

tion, but to relieve pain and promote recovery. And, with the beginning of what may be called the adhesive-plaster era, the effects of muscular contraction and measures for moderating or preventing them became the ruling subjects of observation, experiment, and discussion. In 1860 Dr. Davis published the first description* of the application of adhesive plaster for prehension and traction of the limb in hip disease, and thus excited interest in the subject to such a degree that in the following year the treatment of this affection was discussed in three successive stated meetings of the New York Academy of Medicine by Dr. Batchelder, Dr. Bauer, Dr. Bronson, Dr. Gurdon Buck, Dr. H. G. Davis, Dr. Finnell, Dr. Holcombe, Dr. Krackowizer, Dr. Minor, Dr. Willard Parker, Dr. Post, Dr. Raphael, Dr. Sayre, Dr. A. H. Stevens, Dr. John Watson, and Dr. James R. Wood.† And four years later a not less important discussion on hip disease, in which the new treatment found its advocates and opponents, was carried through many sessions of the Surgical Society of Paris by MM. Blot, Boinet, Bouvier, Broca, Depaul, Dolbeau, Follin, Giralles, Guer-sant, Hervez de Chégoin, Le Fort, Marjolin, Trelat, Vel-peau, and Verneuil.‡

In these discussions and in contemporaneous and subsequent writings on the subject it is evident that muscular contraction was receiving unwonted attention. On the one hand the muscles appeared to threaten the joint, and on the other hand traction appeared to be the stout opponent of the muscles, and the result of the contest was the relief of pain. From these clinical premises, and too hastily in all probability, the conclusion was drawn that muscular action was the chief pathological factor and that traction was the most important therapeutic agent.

Reflex muscular contraction in joint disease had long been recognized. John Hunter, in his lectures delivered in 1786 and 1787, said: “This stiffness of the joint depends on the involuntary contraction of the muscles, and is in consequence of the muscles sympathizing with the joint.”

“Of Muscles losing their Action from Injuries done to Joints, Tendons, and Ligaments.—It is remarkable that an injury done to tendons, ligaments, fasciæ, etc., especially of the strain kind, impair [*sic*] the muscles more than when the muscles themselves are injured, so that these muscles appear to sympathize with those parts of little motion and become wasted and weakened in consequence. I think this arises from sympathy, or a consciousness of the parts being unable to answer to the action of the muscles, and it comes nearest to human reason of anything in the body. If the affection be temporary, as in common inflammation, the muscles do not waste, being conscious that the parts will recover.”*

Reflex contractions were observed in hip disease by Guersant and Maisonneuve, and were considered by them

* Read before the American Orthopædic Association at its seventh annual meeting.

† See quotation below from Dr. Yale.

‡ *Trans. of the Am. Med. Assoc.*, 1853, pp. 479, 480.

* *Surgical Reports*, Boston, 1855, p. 77.

* *Am. Med. Monthly*, April, 1860, p. 262, 263.

† *Am. Med. Times*, April 17, May 4, 11, 25, June 15, 1861.

‡ *Bull. de la Soc. de chir. de Paris*, 1865.

* *Lectures on the Principles of Surgery*, Philadelphia edition, 1839, pp. 284, 290.

as important guides to diagnosis.* Traction and counter-traction were applied to prevent their evil effects in the practice of Le Sauvage,† Brodie,‡ Alden March,§ and Gustav Ross.||

But these observations and experiments attracted no particular attention until Dr. Davis made traction by adhesive plaster in the treatment of hip disease. This material had been used in the last century to control muscular action after rupture or division of the tendo Achillis and fracture of the patella,⁴ and Dr. S. D. Gross made traction by adhesive plaster in fractures of the leg in 1830.⁵ But this method of treating fractures was not generally appreciated till Dr. Josiah Crosby advocated it in 1850.⁶ One of his patients described the sensation of traction thus applied in these words: "It feels as if my leg was in the mud, and I was trying to pull it out."⁷ The words were homely, but they heralded in common phrase a happy emancipation from the pain and disappointment which had ever been the lot of patient and surgeon when traction was applied by bandage, fillet, or laced gaiter.

This simple and successful mode of prehension of the limb was first used in the treatment of diseases of the joints by Dr. Henry G. Davis,⁸ an honorary member of our association, who named his treatment the American method**—a name which has sufficient warrant in the fact that the distinguishing feature of the method is the application of traction by the use of adhesive plaster, a device which had its origin in this country.

The immediate and earnest advocacy by Dr. Davis, Dr. Sayre, and Dr. Fayette Taylor of this method of treating hip disease at once opened a new field of clinical observation and experiment, which has been under industrious and ingenious cultivation ever since. A short and very incomplete list of the questions concerning traction, which have been raised and answered in different ways, includes the following: The question of fixation, the question of separating the articular surfaces, the question of moderating the pressure between the articular surfaces by counteracting the muscles, the question of stretching the muscles till they are paralyzed, and the question of keeping them stretched while motion is made in the joint.

The following alphabetical arrangement of references is

* *De la coxalgie*. Thèse de Paris, 1844, Maisonneuve, p. 106.

† See quotation.

‡ See quotation.

§ See quotation.

|| See quotation. Other surgeons applied traction and counter-traction in hip disease, but without intending especially to combat muscular action: Ducros, *Gaz. des hôpitaux*, June 3, 1835, p. 311; Harris, *Med. Examiner*, Philadelphia, January 19, 1839, pp. 37-40; Bonnet, *Traité des maladies des articulations*, Lyons, 1845; Zannetti, *Bull. gén. de thérapeutique*, 1853 (from *Gaz. med. Toscana*), pp. 136, 137. They all used the apparatus in vogue at the time for the treatment of fracture of the femur.

⁴ *Medical and Chirurgical Observations*. By Benjamin Gooch, London, 1773, pp. 108-110.

⁵ *The Anatomy, Physiology, and Diseases of the Bones and Joints*, Philadelphia, 1830, p. 50.

⁶ *Trans. of the Am. Med. Assoc.*, 1850, pp. 382, 383.

⁷ *New Hampshire Journal of Medicine*, October, 1850, p. 65.

⁸ *Conservative Surgery*, New York, 1868, pp. 213, 214.

** The American Method of treating Joint Diseases and Deformities. *Trans. Am. Med. Assoc.*, 1863, pp. 139-170.

presented with the desire to facilitate an agreement among us as to the *modus operandi* of the method with which we have been credited:

Adams, William. On the Treatment of Hip-joint Disease by Extension with Motion, as practiced by the American Surgeons, instead of Long-continued Rest and Immobility. *British Medical Journal*, January 5, 1878, p. 10: "The object of this paper is to direct attention to the recent advances which have been made in the treatment of hip disease by American surgeons. . . . The first principle is that of extension as a means of relieving the most acute pain in joint diseases. . . . The second principle is that of extension combined with motion. . . . The object of extension is not, as generally supposed, to separate articular surfaces, but to overcome reflex muscular contraction and, by relaxing the muscular rigidity, to prevent undue pressure of inflamed surfaces. . . . The English idea has always been rest and immobility to the joint. The American idea, during the last ten years, has been extension with motion—i. e., preserving motion in the joint while the pain is relieved by extension."

Agnew, Dr. Hayes. *The Principles and Practice of Surgery*, 1881, vol. ii, p. 183: "They [walking splints described] are all constructed on very much the same principle and with a view to permit motion in the joint without articular pressure or friction—an impossible task."

Andrews, Edmund. New Instruments for the Treatment of Hip Disease. *Chicago Medical Examiner*, December, 1860. Describes his splint applied to the inner side of the limb, with a sliding rod carrying a crutch head and screw for extension. Adhesive straps are attached to either side of the leg. Page 274: "The screw is then turned up until the padded crutch top rests firmly against the perineum and the desired extension is accomplished. In this way the weight of the patient rests upon the instrument and the instrument upon the ground without impairing the extension." Notes of Surgical Cases. *Chicago Medical Examiner*, June 1861, p. 294: "These [splints to keep up extension] are used in all stages of the disease. In the early months of the attack the extension takes away the pressure of the inflamed head of the femur in the joint and allows it to recover. After an operation it is used to prevent too great shortening while the end of the femur is contracting a ligamentous adhesion to the sides of the pelvis."

The New Splint for Hip Disease. *Chicago Medical Examiner*, August, 1861, p. 445: "Slight motion of the joint when it is firmly extended is of but little consequence."

Improved Methods of Treatment in Joint and Spinal Diseases. *Chicago Medical Examiner*, September, 1863, p. 428: "The local treatment of hip disease in the first or inflammatory stage consists in the application of some suitable instrument by which the weight of the body and the tension of the muscles can be entirely taken off from the joint, so that the inflamed surfaces no longer press and rub against each other." Page 430: "In the use of this instrument [an extension splint applied on the inner side of the limb] the patient is soon conscious of great relief. Even little children discover in a few days that it greatly relieves their pain, and insist on keeping it on."

Report on Surgery to the Illinois State Medical Society. *Chicago Medical Examiner*, October, 1864, p. 558: "A vast proportion of the spinal, hip, and knee diseases are readily cured by any good extending apparatus which draws sufficiently to take off all the pressure and friction of the inflamed parts."

Armand, Jules. De l'extension continue comme traitement de la coxalgie chez enfants. *Thèse de Paris*, 1878, No. 38, p. 29: "Continued extension [by the American splints] separates the articular surfaces, or at least lessens the pressure." Page 69: "We believe that continued extension is an immobilizing agent. The thigh is drawn down in its axis, the muscles are fatigued and overcome and rendered incapable of movement, and the pelvis is restrained from wide motion by the counter-extension."

Barwell, Richard. *A Treatise on Diseases of the Joints*, London, 1861, p. 261: "Under these circumstances [pain and tonic contraction of the muscles increasing] the proper plan of treatment is to fight against the irritation and to counteract the muscular contraction." Page 266: "To counteract such force [muscular contraction pressing one bone on another], I have invented a form of splint." Page 267: "Besides the mere power of straightening a bent joint (only a secondary use of the splint, and not that for which it was invented), the India-rubber spring counteracts that force which presses the bones too violently together, thereby producing the spasm, keeping up the irritation and the caries. I have seen the most violent pains yield gradually to this contractile force; it appears by its unvarying, constant, and unyielding power to tire out the muscles, to overcome their spasm, and to keep the joint surfaces, if not asunder, still not pressing together."

Lectures on the Natural History and Treatment of Hip-joint Disease. *Lancet*, 1862, 1863; October 17, 1863, p. 441: "Perhaps you will tell me that I am arguing in a circle—that having asserted the muscular spasm to be due to inflammation, it is not logical to prove inflammation due to the spasm. True, this is a circle; but it is Nature's own, and not mine."

Diseases of Joints, 2d edition, 1881, p. 464: "To prevent this pressure [produced by muscular contraction], or at least to mitigate its effects, is the object of extension."

Bauer, Louis. Some Observations on Hip-joint Disease and its Rational Treatment. *New York Journal of Medicine*, September, 1853, p. 173: "We possess in permanent extension [traction?] a sovereign remedy for overpowering muscular reflex action, and ultimately restoring the greatly distorted form."

Discussion in the New York Academy of Medicine. *American Medical Times*, May 4, 1861, p. 297: "The new instrument [combining motion with extension] was admirably adapted to control and alleviate progressive hip disease." May 25, 1861, p. 345: "It was not possible for the articular surfaces to be directly separated by an extension so insignificant as that exercised by the splints."

Lectures on Orthopaedic Surgery, New York, 1868, 2d edition, p. 282: "I have derived little or no benefit from extension *per se* in the treatment of progressive joint diseases. Whatever benefit I have derived from it at all is

unquestionably due to its collateral effect upon fixing the affected articulation."

Blandin. M. Maisonneuve (*Annales de la chirurgie française et étrangère*, 1844, pp. 191, 192) says that M. Blandin advocates and practices a combination of extension of the limb with continued traction, saying that it is "a wonderful thing to see how the pain, often extremely severe, of hip disease disappears as if by enchantment."

Bæckel, Eugène. Des effets de la coxalgie infantile sur la croissance ultérieure du membre. *Archives de physiologie*, vol. iii, 1870, p. 558: "Continued extension is also a method of immobilization, and many surgeons still object to the latter on the ground that it produces ankylosis. But it is arthritis, not immobilization, that produces ankylosis."

Des applications de la traction continue au moyen de l'appareil à sparadrap. *Bulletin général de thérapeutique*, vol. lxxxix, 1875, p. 449: "Continued traction by the American method consists in traction of the joint by a suspended weight through the intervention of adhesive plaster applied to the limb." Page 456: "The effect of continued traction in hip disease is first to relieve the pain, then to remove or lessen the pressure of the head of the femur in the acetabulum, and finally to reduce the deformity."

Bradford, Edward H. The Treatment of Hip Disease. *Boston Medical and Surgical Journal*, November 11, 1880, pp. 465, 466: "It would seem, therefore, reasonable to infer [from experiments described in detail] that the relief given by extension in some cases of hip disease is due to the actual separation of the bones involved in the joint, and that this more frequently is not the fact in the early stages of the disease is probable, considering the anatomy of the joint. In these cases, however, the muscular force which in disease draws the femur upward, crowding the head against the acetabulum or forcing it above the normal position of the latter, is counteracted by thorough extension. It is to this, probably, that the relief obtained by extension in the majority of cases is due. This relief is so marked that there can be no doubt of its efficacy as a means of treatment. It is also true that extension, provided the pelvis is steadied, can be made to give efficient fixation, but it is manifest, from cases which are frequently met with, that simple extension without any attempt to secure the pelvis gives great and immediate relief." Refers to experiments of Morosoff, König, Paschen, Schultze, Reyher, and Ranke, made to determine the effect of extension on separation of the head from the acetabulum and on the degree of hydraulic intra-articular pressure.

Brodie, Benjamin. *Pathological and Surgical Observations on the Diseases of the Joints* (third London edition, 1834), Washington, 1834, p. 55: "At a later period when, in consequence of the extensive destruction of the articulation, the muscles begin to cause a shortening or retraction of the limb, I have found great advantage to arise from the constant application of a moderate extending force, operating in such a manner as to counteract the action of the muscles. For this purpose an upright piece of wood may be fixed to the foot of the bedstead opposite the diseased limb, having a pulley at the upper part. A bandage may

be placed round the thigh above the condyles with a cord attached to it, passing over a pulley, and supporting a small weight at its other extremity."

Clinical Lectures on Surgery—Philadelphia edition, 1846, p. 297—describes the same apparatus: "In this upright piece of wood there is a pulley, which pulley is just in line with the thigh bone. . . . A few ounces of lead or some copper penny pieces put into a basket are sufficient in the case of a child. . . . The patient suffers because the head or neck of the femur is leaving its own place and getting into new parts which are not intended to have the rough bone in contact with them. . . . It is astonishing what comfort I have known this to give the patient in some instances."

Diseases of the Joints—fifth edition, London, 1850, p. 139—describes the same apparatus, a leather strap being substituted for the bandage above the condyles of the femur and "the pelvis being at the same time fixed by a strap to the middle or upper end of the bedstead." Page 140: "This in some instances seemed to relieve the pain, and I am inclined to think it was useful otherwise by counteracting the muscles, which tended to draw the limb upward. However, it almost always happened that something occurred to prevent the experiment being fully and fairly tried; and all that I can venture to say respecting it is that it may be worth while, in certain cases, to give this mode of treatment a further trial."*

Busch. Armand, on pages 74 and 75 of his thesis, states that Busch affirms the good effect of continued extension on the course of the disease, but believes it to be the result of an increase of hydraulic pressure in the capsule, in opposition to which Armand cites the experiments of König and his own.

Cooper, E. S. Editorial, *San Francisco Medical Press*, July, 1861, p. 145: "Often have patients slept better the first night after its application [referring to his tin splint for extension] than they had done for months previously."

Davis, Henry G. Deformities and their Remedy. *American Medical Monthly*, March, 1856, p. 212: "These artificial muscles answer another important part in wearying out the contracted muscles by their constant action night and day, thus tending to elongate them." May, 1856, p. 329: "This same principle of treatment—viz., the separating of the diseased surfaces and removing from them all irritation from pressure—is equally applicable to disease of the hip joint." Page 330: "This [rubber used as an extending power] will act steadily and gradually without any violence and with very little suffering in comparison with permanent fixtures. When contracted muscle is to be overcome, it stealthily wearies it until it silently comes off conqueror."

A Case of Pott's Disease, with Remarks. *American Medical Monthly*, November, 1859, p. 361: "In morbus coxarius we separate the diseased head of the femur from the

acetabulum, thus leaving the parts in a condition to recover so far as pressure might have interfered. By this means we also get in both instances [Pott's disease and hip disease] passive motion without friction."

On the Effect of Pressure upon Ulcerated Vertebrae and in Morbus Coxarius. *New York Journal of Medicine*, November, 1859, p. 418: "Extension was made upon the limb, and after the muscles had become wearied so as to allow the head of the bone to come down upon the inferior portion of the acetabulum, the pain was relieved." Page 420: "I can but consider it highly beneficial to keep up motion of the joint, yet not allow friction upon the diseased surfaces."

On the Mechanical Means adopted in the Treatment of Morbus Coxarius. *American Medical Monthly*, April, 1860, pp. 263, 264: "The extension is first made at that angle with the body that I find the limb; as the tenderness of the joint subsides, the body should be gradually lowered until it is brought in a line with the limb; when this is effected, the splint can be applied and the patient put upon crutches and permitted to exercise." Page 267: "It puts the diseased parts in the best position for their restoration with a perfect joint, as it relieves the pressure upon the head of the bone, while at the same time it admits of motion, which increases the recuperative energy of the parts, inasmuch as it increases vitality."

On the Advantages of Elastic Extension in Morbus Coxarius. *American Medical Times*, Sept. 1, 1860, p. 149: "When I speak of extension I do not apply the term to confining the limb in a given position, but to the process by which the soft parts are kept continuously upon the stretch, whether by means of a weight and pulley or some elastic material, the result of which process upon the muscular fiber is to weary it and put it at rest."

On the Pathological Basis of the Treatment of Joint Diseases. *American Medical Monthly*, November, 1862, p. 323: "If handled a little roughly all the muscles will be upon their guard." Page 336: "When extension is made by an elastic material the muscular fiber becomes wearied, the nervous influence is expended, and the bones come down until the extending power is exerted entirely upon the unyielding tissues. . . . An unremitting draft is kept up upon the muscles, and yet the limb is not fixed but that the muscles may contract and thereby exhaust their nervous influence and ultimately rest like any muscle wearied from exercise."

The American Method of treating Joint Diseases and Deformities. *Transactions of the American Medical Association*, 1863, p. 150: "Pressure, mostly owing to muscular contraction, is the most active agent of destruction in the morbid process. . . . The essential parts of the apparatus are simply means of exerting an elastic, continually extending force on one side and a resisting counter-extending one on the other." Pages 154–156: "The joint becomes in a manner fixed . . . as a remedial measure. . . . It undoubtedly is to protect the surfaces of the joint (that come in contact in the natural movements of the limbs) when diseased from friction. . . . So far as this object can be accomplished by the muscles holding the joint motionless

* Sir Benjamin was very familiar with Scott's dressing of those days, which consisted of adhesive plaster applied so abundantly as to obstruct the motion of the hip. It would have been a happy thought to use the same material with his weight and pulley instead of the bandages and leather strap.

they so act. Now, in effecting this immobility, are the muscles of the diseased joint relaxed, and therefore at rest? Or are they in a semi-contracted state, and thus fix the joints by acting equally upon every side of it? . . . If it is true that the diseased joint is held in a fixed position by a certain rigidity of the muscles passing to or beyond it, an amount of pressure corresponding to the contractile force of the muscles as then exerted must be produced upon the articulating surfaces of the joint, . . . producing absorption, when not sufficient entirely to arrest the nutrition of the parts, and when going beyond this point death, with exfoliation of the parts pressed upon."

Conservative Surgery, New York, 1867, pp. 85, 86:

"After the lapse of an indefinite period from the receipt of severe injury to a joint the muscles acting upon it sometimes pass into a state of fixed contraction, or may start into spasmodic action upon any effort being made to move the joint either voluntarily or by the attendant. . . . This action of the muscles is not dependent upon any disease of their fibers or their nerves, but is simply a contraction for the purpose of preventing, instinctively as it were, motion in parts where motion is productive of pain. This constant contraction of muscles passing over a joint, thereby guarding with increased vigilance against motion, when all movements of the joint give pain, is the efficient cause of the destruction of the parts pressed upon or against each other, and should always be counteracted." Page 206: "When disease about a joint renders the movements of that joint painful, . . . the joint is always liable to be destroyed by uninterrupted pressure effected through the contraction of the muscles passing over it. They do this by preventing the parts pressed upon from receiving nourishment, in the same way as a bed sore is produced." Pages 209, 210: "The treatment of simple synovitis in its earlier stages by extension is as imperatively demanded as at any later period, and relieves the pain as effectually. . . . Continued elastic extension is applicable not only to synovitis, but to all other diseases within the capsule; and not only these, but when parts about or in the vicinity of a joint are so painful as to compel the individual to hold the joint motionless, extension should be applied, for the reason that the pressure exerted by the muscles in holding the joint motionless will strangle the nutrient vessels of the parts held in contact." Pages 212, 213: "In diseases of the joints we were the first to point out, as an always-present factor in the destruction, the existence of unremitting pressure as effected by contraction of muscles passing over the joints causing constant forcible opposition of the surfaces within the joint. . . . When this fact was fully established in our mind we were led to seek the best way of counteracting the contraction of the muscles, and soon came to the conclusion that a constantly acting force, however moderate, must eventually weary muscles by giving them no respite." Page 214: "The first splint, as well as all my modifications, admits of free motion at the diseased joint, but rigidly excludes all friction of the diseased surfaces within the joint upon each other. This we consider the essential element in the treatment of the disease under consideration—viz., motion without friction."

Gibney, V. P. *The Hip and its Diseases*, New York, 1884, p. 324: "By far the surest method [of relieving pain] is fixation and traction. The weight and pulley sometimes act like a charm. The spasm is overcome, the limb is supported, and the child falls asleep without fear." Page 358: "The one practical idea, however, to which all these splints tend is immobilization or fixation, with the associated idea of motion if desirable." Pages 359, 360: Points that seem to be settled: "(1) Traction does not produce any appreciable separation of the head of the bone from the acetabulum. (2) It does induce fixation and prevents concussion. (3) It relaxes muscles by overcoming reflex spasm. (4) Fixation is considered of far more value than pure extension. (5) Traction to be efficacious must be in the line of the deformity."

Hennequin. Quelques considérations sur l'extension continue et les douleurs dans la coxalgie. *Archives générales de médecine*, December, 1868, p. 79: "Continued extension, having overcome muscular power, separates the articular surfaces and does away with pressure and pain." Page 80: Recognizes the vicious circle in which pain increases muscular action, which in turn produces more pain. Suggests the theory that the contracting muscles keep the femoral head turned in such a way that the less sensitive portions of its surface receive the pressure. Page 176: "The object of continued extension is to paralyze the action of the muscles." Pages 186, 187: A case of eighteen months' duration in a girl of eighteen years with apparent shortening of ten centimetres treated by continued extension. "Twenty-four hours had not passed before the pain disappeared, the pelvis descended laterally around the lumbar column, the swelling subsided, and a cheerful confidence succeeded depression."

Hildreth. Discussion in the Boston Society for Medical Observation. *Boston Medical and Surgical Journal*, April 26, 1877, p. 506: "Dr. Hildreth thought that not so much extension was required as rest; extension sufficient only to overcome the muscular contraction."

Holmes, Timothy. *Surgical Treatment of the Diseases of Infancy and Childhood*, London, second edition, 1869, p. 444: "The early symptoms of hip disease are in a great measure muscular, and can only be treated successfully by measures directed to the relief of muscular contraction—i. e., by mechanical extension." Page 447: "The first indication of treatment is to place the parts at perfect rest under the influence of sufficient extension to avoid exacerbations induced by muscular spasm." Page 448: "I have found nothing answer so well as the old plan of suspending a weight to the foot sufficient to overbalance the tension of the muscles. . . . The spasmodic pains will subside and the child, freed from the irritation and the loss of sleep which they occasion, will rapidly recover the aspect and appetite of health. . . . The most convincing experiment and one which I have frequently repeated is, after the starting pains have subsided (which they do usually on the second or third day from the application of the weight), to leave it off, when they will almost infallibly recur on the second succeeding night, again to disappear on renewal of the treatment."

Hugman, William C. *On Hip-joint Disease*, London, second edition, 1866. Pages 35-39 contain reference to the Fifth Report of the Hamburg Hospital, where treatment was "in the latter stages by keeping up a gradual extension, so as to overcome the spasmodic action of the extensor muscles, which, according to the opinion of Dr. Fricke and Dr. Taudtmann, when dislocation had taken place, not only tends to increase the deformity by further shortening the limb, but also adds to the inflammatory condition of the part by friction of the head of the thigh bone upon the dorsum of the ilium."

Hutchison, Joseph C. *Contributions to Orthopaedic Surgery*, New York, 1880, pp. 8, 9: "The object of extension is: (1) To correct the malposition of the limb. . . . By means of extension we also (2) overcome the spasm and contraction of the muscles which, by reflex contraction, press together the inflamed articular surfaces, and constitute the chief cause of pain in joint inflammation; but I do not think it possible by any amount of extension that can be applied to separate the inflamed and swollen interior surfaces of the joint so as to relieve them from pressure and the consequent pain. What we do accomplish by extension is the relief of spasm and of muscular shortening; and to quiet the muscles is an important therapeutic axiom . . . motion without friction, a condition which . . . seems to me to be a mechanical absurdity. We might with equal propriety speak of sound without vibration of the air." Pages 18, 19: "To obtain extension of the limb no apparatus is required. Extension is made by the weight of the suspended limb [the patient being provided with crutches and a high sole on the well foot], which is equal to a fifth of the whole weight of the body and is greater than the weight usually employed for extension. This is quite sufficient to subdue the spasm of the muscles which crowd the head of the bone into the inflamed acetabulum and is the chief cause of the pain which the patient experiences. . . . The extension not only relieves pain, but it corrects the malposition." Page 40: "The spasmodic contraction of the peri-articular muscles is overcome by the gentle, persuasive, and painless (physiological) extension made by the weight of the limb." Pages 19, 20: "This plan of treatment should be adopted . . . except in the comparatively rare form . . . attended with great constitutional disturbance and excruciating pain. . . . Until after the acute symptoms have subsided such cases should be treated in bed with the long splint and the weight and pulley."

Discussion in the New York Academy of Medicine, *Medical Record*, May 1, 1880, p. 492: "He believed it to be impossible to separate the head of the bone from the acetabulum by any mechanical appliance, and all an apparatus could do was to prevent the head of the bone from jamming up into the acetabulum, and thus prevent pain."

Hyde, J. N. An Adaptation of the Plaster Jacket to the Splints for the Hip. *American Journal of the Medical Sciences*, July, 1877, p. 124: "It will be seen from the preceding description that the hip splint, as thus modified [combination of plaster-of-Paris jacket and short traction splint], provides for extension and counter-extension, with free mobility and without perineal pressure."

Judson, A. B. Considerations respecting the Mechanical Treatment of Hip Disease, with Especial Reference to the Value of Traction. *St. Louis Courier of Medicine*, May, 1881, p. 370: "The advantages derived from the traction exerted by the hip splint are due solely to the fact that it secures fixation." Page 371: "It is not believed that the hip splint secures absolute immobility, but fixation or a reasonable degree of immobility."

Some Practical Inferences from the Pathology of Hip Disease. *New York Medical Journal*, July, 1882, pp. 9, 10: "In these cases [early stage] the articular surfaces directly exposed to pressure are free from erosion or ulceration, while the underlying spongy tissue of the bone is deeply implicated, and yet reflex muscular contraction is one of the earliest recognizable symptoms. So far as the incipency of the disease is concerned, the recorded facts of pathology fail to sustain the importance of muscular action." Pages 10-15: In the middle stage ulcerations first appear on the neck and not on the articular surface, and when the articular surface is marred its lesions are less severe than those of the underlying tissue—facts which show that the morbid action proceeds from within outward, from the interior of the bone toward its surface; whereas, if the muscular contraction were an important factor the reverse would be true. When the evidences of pressure are found they are seen in the altered shape of the head and neck of the femur, and are as readily referable to the pressure and concussion incident to standing and walking as to the pressure resulting from muscular contraction. Page 15: "In this [the late] stage the signs of disease are never limited to the parts directly exposed to pressure, for all the surfaces of the upper extremity of the femur and sometimes a portion of the shaft are thoroughly diseased. If the action of the muscles is productive of mischief in this stage, the unremitting and firm pressure which is thought to accompany reflex muscular action ought to produce effects much graver than those which are found." Page 16: "If the femur were in fact propelled by such a force, instead of the recession of the upper edge of the acetabulum and the occasional perforation of its floor we should have in every case, and soon after the accession of the disease, an abrupt invasion of the pelvic cavity by the decapitated femur."

What is the Rationale of Traction and Counter-traction in the Treatment of Hip Disease? *Medical Record*, May 12, 1883, p. 511: "There are great mechanical difficulties in the way of the practical application of this idea [traction with motion]. If traction and counter-traction are applied in the line of the thigh and trunk, it is difficult to conceive that the same amount of force can be maintained through all the variations of flexion, extension, adduction, abduction. . . . The idea is that traction and counter-traction are curative because they deprive the muscles of their contractility. Muscular fiber may lose its contractility from rupture or degeneration, but that it surrenders this high endowment to the application of traction is, to say the least, extremely questionable. If an elastic force be used, the muscles to which it is applied would probably increase in size and vigor from the exercise."

The Fixative Power of Traction in the Treatment of Hip Disease. *Medical Record*, July 7, 1883, p. 2: "Take two rods of iron and form an eye in the end of each by bending its extremity into a small circle. When the rods are joined by these eyes they will together resemble two links detached from a surveyor's chain, and there will be wide and free mobility at the joint. Then tie the free end of one link to a staple and apply traction, by means of a weight and pulley, to the free end of the other. It is seen at once that the mobility which existed at the joint between the links is absent so long as the traction continues. . . . Or subject the two links to traction in a hip splint, tying the free end of one to the perineal straps and that of the other to the leather straps which lead to the foot piece. The result of applying traction by the rack and pinion is fixation of a remarkably stable and indestructible kind." Page 4: "The fixation which this apparatus secures is of a peculiar quality. It may be compared to the condition found in some forms of paralysis, when a joint is said to resemble a leaden pipe, which may be bent with suitable force, but retains with sufficient firmness whatever position it may be placed in. This fractional degree of fixation is attended with sufficient arrest of motion to allay inflammation, encourage the reparative process, and afford relief from pain; and yet it is not so inflexible as to prevent the gradual correction of deformity in obedience to the unconscious efforts of the patient to place the limb in its most useful position, which is that of slight flexion with neither adduction nor abduction.

Knight, James. *Orthopædia*, New York, 1874, p. 263: "Nothing is more fallacious than to expect a cure to be made by a continued extension of the limb, as that of the weight and pulley, which continues to extend . . . to the impairment of the tone of the muscles. In our experience it is only palliative to pain, and not curative, but actually injurious as a treatment."

Le Fort. Discussion in the Surgical Society of Paris. *Bulletin Société de chirurgie*, March 8, 1865, p. 77: An indication urged by American surgeons is continued extension, "not to prevent spontaneous dislocation, but to promote cure of the disease and especially to relieve the pain often so severe in the early stages." Le Fort's extension apparatus described by Philippeaux (*Traité de thérapeutique de la coxalgie*, Paris, 1867, pp. 418, 419) is designed to gradually reduce flexion, to diminish pressure of the head in the acetabulum, and to permit locomotion and motion in the joint.

Le Sauvage. Mémoire théorique et pratique sur les luxations dites spontanées ou consécutives, et en particulier sur celle du fémur. *Archives générales*, November, 1835, p. 280: "I believe that the use of the bandage for continued extension is not only to lengthen the limb, which is not necessary in every case, but also to prevent motion and pressure caused by muscular contraction."

Liston, Robert. Lectures on Diseases of the Bones and the Joints. *Lancet*, November 25, 1843, pp. 237, 238: "All this [the use of a weight and pulley] may amuse the patient's mind, perhaps, but I do not think any good can come of it further than preventing motion."

Macnamara, C. *Lectures on Diseases of Bones and Joints*, London, second edition, 1881, p. 425: "There can be no question that spasm of the muscles in cases of this kind may be overcome by extension effected through a weight and pulley, a means of treatment which can not be too highly recommended."

March, Alden. On Coxalgia, or Hip Disease. *Trans. of the Am. Med. Assoc.*, 1853, p. 499: "It is proposed now to show how extension and counter-extension . . . can be explained on pathological principles. . . . By the pressure of the muscles that act on the head of the bone and acetabulum, in addition to ulcerative absorption, we get progressive absorption, and hence the great destruction of the osseous parts of the joint. . . . Extension and counter-extension are used with a view to prevent undue pressure on the delicate and tender surfaces of the diseased bones."

Markoe, Thomas M. *A Treatise on Diseases of the Bones*, New York, 1872, p. 114: "There is a mode [weight and pulley] of securing rest to the limb . . . which is attended with the very great advantage of relieving the pressure of the joint surfaces against one another, produced by the tonic contraction of the muscles surrounding the joint."

Marsh, Howard. On the Prejudicial Effect of Inter-articular Pressure in Joint Disease; and the Application of Continuous Extension, by Means of a Weight and Pulley, as a Remedy for this Condition. *St. Bartholomew's Hospital Report*, 1866, p. 149: "When the child had become free from pain, which was usually the case in from three to eight days, I went during the night, while he was asleep, and raised the weight and lodged it in the bottom of the bed, thus setting the muscles free from restraint and giving them liberty to contract. In a very few hours many of the children so treated became restless in their sleep, and presently awoke with the old pain, and screaming. . . . The influence of such pressure as that which muscular action produces on the surfaces of a diseased joint is in the highest degree prejudicial." Page 150: "Seeing how grave an influence is excited on the course of joint disease by the pressure and bruising which the articular surfaces inflict upon each other, both during any movement of the limb and during muscular action, it is obviously of importance in treatment (1) to keep the surfaces at all times from contact, and (2) to control the muscles." Page 151: "The necessity of providing artificially for the relief from pressure in disease is obvious when it is remembered that in the spontaneous course of events not only is the pressure constant, but also that it is greatly increased in its amount by abnormal muscular action. Extension by means of a weight is well adapted for supplying this need. The second indication in the management of joint disease to which I have referred is to control irregular muscular action. As this abnormal action is due, as we learn from Mr. Hilton, to the inflamed condition of the joint, it may be expected to subside when the inflammation passes off. Until this is the case, however, it will be found that it is perfectly controlled by continuous extension. By this force the muscles are tired out, and are soon made to capitulate."

Lectures on the Diagnosis and Treatment of Hip Disease in Children. *British Med. Jour.*, July 28, 1877, p. 98: "As the muscles and other rigid structures yield, the limb will subside into its natural position until it is in full extension and parallel with its fellow. As this change goes on, you must gradually shift the pulley so that it is kept still in the line of the long axis of the femur." Page 99: "The greatest amount to which the surface of the head of the femur can be separated from that of the acetabulum can not be more than about the tenth of an inch. And it is very difficult to preserve efficient extension and counter-extension within this range, for the parts can not be acted upon as if they were parallel metal plates to be adjusted by a screw; they must be controlled through the agency of perineal bands and strapping fixed upon the skin, and all these are apt to give when they are subjected to constant traction; and, if they yield, though it be but slightly, they soon, in the aggregate, lose this tenth of an inch of extension which they should maintain, and then the articular surfaces come again into firm contact. Besides, I may refer to what has seemed another difficulty. Both Dr. Sayre and Dr. Taylor allow their patients to move the thigh upon the trunk by bringing it toward flexion, and it has always appeared to me that if the perineal band be adjusted, according to their direction, when the limb is extended, it will become loose when the limb is flexed."

Maylard, A. Ernest. The Double Splint in Affections of the Hip. *Glasgow Med. Journal*, March, 1882, p. 162: "To obtain what is absolutely necessary for joint repair—perfect rest—movement must be checked, muscular action counteracted, and, still further, any pressure of the inflamed surfaces upon each other prevented."

Monod, Charles. De l'extension continue dans le traitement des arthrites. *Arch. gén.*, June, 1878, pp. 723-725: "Recall the painful contraction, the muscular rigidity of arthritis, the *vigilance musculaire*, protecting the joint from inadvertent disturbance, but entailing deformity and destruction. Evidently continued extension, especially if applied in the early stages, acts by combating the excited muscles. Challenging them to the contest, it deprives them of their power, and in this lies the great advantage of this method. . . . Traction, really continuous, must triumph over muscular resistance. If the traction is permanent and strong enough the muscle will, after resisting for a time, finally yield and fall into relaxation. . . . We recall these facts because those who are using this method do not seem to view them aright. Overlooking the real object and seeking to separate the articular surfaces, they are absorbed in increasing the amount of traction, instead of making it really continuous."

Parker, Willard. Discussion in the New York Academy of Medicine. *Am. Med. Times*, May 11, 1861, p. 311: "The treatment of inflammation in the early stage is rest. We get our extension and counter-extension by the application of this splint, and thereby we accomplish everything in the joint. Our patient gets the air, but that joint is still at rest."

Philipeaux, R. *Traité de thérapeutique de la coxalgie*, Paris, 1867, p. 261: "The so-called American method is

the application of continued extension to arrest the progress of acute disease and to dissipate the severe pain so common in the early stage." Page 262: "They apply continued extension to remove all pressure on the articular surface by the weight and pulley at night and special apparatus in the daytime. This practice leads to the neglect of the great principle of immobilization without which nothing can be done." Page 284: "Starting with the mistaken idea that the pain is due to pressure on the articular surfaces and that the shortening is due to absorption of cartilage and deepening of the acetabulum, they apply continued extension to prevent pressure and avert deformity." Page 285: "After deformity is reduced immobility may be assured by continued extension in the absence of proper immobilizing apparatus."

Roberts, M. J. Elastic Extension and Articular Motion as Therapeutic Agents in Chronic Joint Disease. *The Medical Gazette* (New York), Feb. 18, 1882, p. 74: "He believed that it was necessary, in order to preserve the integrity of the joint and the part below it, to keep up a certain amount of motion. . . . If motion without friction was to be obtained, the splint must keep up extension with no articular pressure, and allow for the lateral deviation. What was wanted was an instrument that would automatically lengthen as the limb shortened in flexion. Such an instrument he had devised."

The Hip and its Diseases. By V. P. Gibney, New York, 1884, p. 377: Dr. Roberts describes portions of his splint as "constructed with special reference to exerting continuous elastic linear traction [by India rubber] upon the thigh." Page 379: "By continuously exerting elastic traction, it is further claimed, articular motion becomes possible without interarticular pressure or friction."

The Fundamental Principles of Mechanio-therapy in Hip Disease. *New York Medical Journal*, March 15, 1884, p. 294: "The combined use of efficient resilient support, firm tensile circumferential compression, and elastic linear traction, renders the patient more comfortable and more quickly subdues reflex spasm than the independent use of any one or two of these measures; and during the continuance of their conjoint use, articular motion can be made without the slightest discomfort to the patient." May 3, 1884, p. 490: Maintains "the feasibility of permitting articular motion at the hip, under the restrictions of efficient resilient support, firm tensile circumferential compression, and elastic linear traction."

Ross, Gustav. Ueber ein neues Behandlungsprincip der Gelenkkrankheiten. *Deutsche Klinik*, March 4, 1854, pp. 96-99: Deformity is caused by reflex muscular action. Refers to his statement made in Blandin's clinic, Paris, 1845, that myotomy of biceps in the case of a diseased knee would have lessened caries because the pressure from muscles would have been lessened. In hip disease muscular action prolongs inflammation, and treatment should consist in preventing the contraction of the whole muscular mass around the joint. Treats all cases of joint disease by extension by weights and pulleys. The pain lessens astonishingly.

Sayre, L. A. *American Medical Monthly*, April 1860, p. 298: "When left to itself, the rest which is so essential

to the joint is procured by the firm muscular contraction which prevents the motion in the joint, and is so perfect as in many instances to assume the appearance of genuine bony ankylosis. But this constant muscular contraction exhausts the nervous system and induces hectic fever; gives the child nocturnal spasms of intense agony; prevents nutrition of the limb, which results in atrophy. We therefore resort to artificial means to produce this rest. . . . The great difficulty to be overcome in securing entire rest of the joint is the danger of producing bony ankylosis, resulting from the general inflammation of the surrounding structures, and sometimes great stiffness and partial ankylosis of the well joints. On the other hand, if we remove the instrument and commence passive motion, without keeping up extension, there is danger of reproducing the inflammation. I have therefore come to the conclusion that perfect rest, however essential it may be to an inflamed synovial membrane, is not only unnecessary to the ligaments (which in the earlier stages were not involved in the inflammation), but was positively physiologically wrong. As the eye needs the healthy stimulus of light, so does the ligament need the stimulus of motion. If, then, we can give motion to the ligaments of a joint, while at the same time we prevent muscular contraction, so as to remove pressure from the synovial membrane, we shall accomplish our object." Page 300: "The India rubber, by the permanency of its contraction, will overcome the muscular rigidity."

Report on Morbus Coxarius, or Hip Disease. *Trans. Am. Med. Assoc.*, 1860, p. 475: "If the effusion be excessive, or the inflammation acute, you will have an apparent ankylosis, caused by muscular contraction, which is an involuntary act, produced by reflex action of the inflamed or irritated nerves, and is done for the purpose of keeping the joint perfectly still. It affords the natural indication for the surgeon, by imitating this action, to accomplish the same result of perfect rest to the inflamed synovial membrane. This we may do in a much more effectual manner, for at the same time we succeed in relieving the other parts from a pressure which, if long continued, must cause, in the absorption of the cartilage and bone, the destruction of the joint. Motion, when not accompanied by extension, is much more painful than rest, even if accompanied by the pressure caused by the muscular contraction. Hence the patient, naturally choosing the least of two evils, obtains rest of the part by muscular rigidity, even at the expense of the absorption arising from the pressure."

Objections to the Treatment of Morbus Coxarius in its Advanced Stages by Extension, unless preceded by Tenotomy. *American Medical Times*, May 9, 1863, p. 219: "The object of extension in the inflammation of all joints is to relieve pressure from the inflamed synovial membrane and cartilage."

On the Mechanical Treatment of Chronic Inflammation of the Joints of the Lower Extremities. *Transactions of the American Medical Association*, 1865, p. 379: "Chronic inflammation of any joint produces reflex contractions, causing deformity and severer pain by increasing pressure at the diseased surfaces, thus making extension and counter-extension a necessary part of the treatment."

Introductory Lecture, New York, 1868, p. 11: "I have been enabled to test the correctness of the now established principle of extending a contracted muscle by the constant application of an elastic force, moderately but persistently applied."

Clinical Lecture on Fibrous Ankylosis. *Medical Record*, Sept. 1, 1874, p. 449: "Extraordinary results can be obtained in the way of overcoming muscular rigidity by the application of a constant unremitting force. Under circumstances favoring the application of constant unremitting elastic force equally as favorable results can be obtained by paralyzing muscular power, thus overcoming deformities produced by it."

On Ankylosis. *Transactions of the New York Academy of Medicine*, 1874, p. 27: "This contraction [produced by reflex irritation] not only aggravates the disease by causing undue pressure on the parts inflamed, but also distorts the limb in accordance with the action of the most powerful muscles involved, and the distortion can only be prevented by the proper application of an extending and counter-extending force during the treatment of the disease."

Lectures on Orthopaedic Surgery, New York, 1876, p. 244: "This pain, moreover, is self-perpetuating, for the irritation of the diseased joints causes the muscular contractions, and these in turn aggravate the inflammation." Pages 273, 274: "The most important of all the means to be employed [first stage], and the one upon which all prospect of success depends, is rest of the joint and perfect freedom from pressure of the inflamed articular surfaces." Page 275: "Extension is employed [second stage] for the purpose of counteracting the morbid contraction of the muscles, and to relieve the pressure upon the articular surfaces of the joint, and is persisted in until the more prominent inflammatory symptoms have subsided." Page 278: "The object of such appliances is merely to [third stage] relieve the joint from pressure by permanently extending the morbidly contracted muscles and at the same time securing its perfect mobility."

Discussion in the Surgical Section of the British Medical Association. *British Medical Journal*, Aug. 30, 1879, p. 317: "The first point to be attended to is the employment of extension and counter-extension carefully regulated so as to readily relieve the parts from pressure, as indicated by the comfort of the patient. The next great element is rest, as complete and perfect as can be given to the parts." Page 319: "The first principle was rest, as absolute and complete as it could be made, for the individual joint involved in the disease; and the next thing was to prevent the muscular contraction that would always take place whenever there was inflammation. There should be extension of the joint, just such as would prevent pressure and no more; otherwise destructive changes would go on."

Discussion in the Surgical Section of the New York Academy of Medicine. *Medical Record*, Dec. 6, 1879, p. 544: "Constant muscular contraction kept up constant pressure of the diseased surfaces one upon the other, absorption occurred, and where it had extended sufficiently far, the acetabulum was perforated and the head, or rather

the upper extremity of the femur, rode through it. It was to overcome the constant and persistent action on the part of the muscles that some mechanical apparatus was employed which relieved them, and at the same time simply kept the diseased surfaces from coming in contact with each other. . . . By fulfilling these conditions [by extension and counter-extension] the exciting cause of the muscular contractions was removed, and with its removal went the tendency to reflex muscular movements, and at the same time more or less motion in the joint was obtained."

A Clinical Lecture. *Medical Bulletin* (Philadelphia), January, 1882, p. 4: "Where slight extension is made, the movements of the joint can also be made and thus permit of recovery without ankylosis."

Discussion in the New York Academy of Medicine. *Medical Record*, May 1, 1880, p. 492: "Give the parts involved in the disease absolute rest and freedom from pressure without materially interfering with the mobility of the joint. Extension in such a manner as to permit motion should be the object sought for in any mechanical appliance, except in cases in which the inflammation is so violent that absolute rest is required for a time."

Schede. Armand, on page 42 of his thesis gives a case from Schede of a girl of fourteen years who had suffered the acute pain of hip disease for four weeks. For the six days before treatment the temperature was between 101°-1° and 100°-8° in the morning and between 102°-6° and 103°-1° in the evening. Traction was applied, and after a night of sleep, the first in a long time, the thermometer recorded—

The first morning, 99°-5°; evening, 102°-9°.

The second " 100°-4°; " 101°-1°.

The third " 99°; " 100°.

From that time the temperature was normal.

Shaffer, Newton M. On Reflex Muscular Contraction and Atrophy in Joint Disease, with Remarks on Mechanical Extension. *Archives of Clinical Surgery*, June 15, 1877, p. 82: "The primary contraction that occurs in joint disease is reflex. Clinical experience proves that whatever relieves joint pressure and arrests motion will modify the contraction, and that whatever increases joint pressure aggravates the inflammation and intensifies the contraction. The primary indications are therefore to relieve joint pressure and to arrest motion. These can both be accomplished by a properly adjusted extension apparatus. . . . The extension is then exerted, so far as the conformation of the hip joint will permit, directly upon the joint, and the contracted muscles yield as the cause of the contraction is modified."

A Review. *Archives of Medicine*, October, 1880, pp. 198, 199: "When traction exists, the patient has the advantage of that peculiar and perfect immobility which the extension of the long hip splint affords. . . . We made an experiment several years ago which demonstrated beyond a doubt that the Taylor-Sayre instrument produces almost complete fixation in a healthy hip joint. The experiment, in brief, was the application of a hip splint to the right lower extremity of a child, whose left hip was ankylosed from former disease. After the application of the splint to the healthy limb the patient could not walk a step. All motion at the left hip being lost, the boy, with extension, was

unable to bring the flexible vertebral column to his aid. When the knee-cap was loosened and flexion of the thigh was permitted, the patient walked very awkwardly for a step or two."

Stillman, Charles F. Extension and a New Method for its Production. *Med. Record*, Dec. 4, 1880, pp. 620, 621: "The contractile force of the muscles is involuntarily excited to press the opposing articular surfaces still closer together. As a result of the increased irritation, we have . . . injury to the articular surface, and, finally, implication of surrounding tissues. Therefore, in order to overcome this primary irritation of the joint, we must overcome the contractility of the muscles governing the joint."

Tarbell, G. G. A Review. *Boston Med. and Surg. Jour.*, Aug. 31, 1876, p. 263: "The patient is not to be confined, as formerly, to bed, but is to be furnished with such mechanical aid [portative traction splint] as will prevent motion of the joint and slightly separate its inflamed surfaces. . . . Motion at the hip joint [is] the very thing which, in the acute inflammatory condition of the joint, is acknowledged to be harmful, and to prevent which is the sole object of the apparatus."

Taylor, C. Fayette. Improved Counter-extension Splint for Morbus Coxarius. *Am. Med. Times*, July 20, 1861, p. 38: "The movement of every joint of the limb is most perfectly secured, that at the hip especially not being in the least interfered with by the counter-extension force."

Some Considerations in regard to Hip-joint Disease. *Med. Record*, Sept. 1, 1867, p. 290: "I do not believe it [the drawing out of the head of the bone] occurs or ought to occur, nor do I believe it would be anything but harmful if it did occur. The sole object of counter-extension is to destroy the tonicity of the muscles about the hip joint. This destruction of tonicity gives relief and motion. . . . And this should be our aim, and until we have accomplished it we have not realized the benefit of counter-extension treatment at all. If a splint or weight be applied, it may assist in keeping the limb steady and quiet, and in that way the patient may improve; but the improvement is due to the confinement and protection from motion, rather than to extension and motion, which latter are the two sources of benefit when counter-extension is efficient. I repeat, the muscular tonicity must be temporarily destroyed. The counter-extension must be carried to that point. And we have a certain guide as to the amount of force to be used and the extent to which it is to be carried. When we have destroyed tonicity, our chief labor is done. . . . If contractions accompany or follow the disease, we may be sure that our counter-extension has been inefficient, and therefore worthless as such, and that the improvement, if any, is due to the quiet fixation of the joint, which the splint has been a convenient means of accomplishing. And I suspect this is very often the case in the use of both splint and pulley."

On the Mechanical Treatment of Disease of the Hip Joint, New York, 1873, p. 13: "On the very first intimation of a diminished ability to bear pressure, which is the great obstacle to a spontaneous arrest of any morbid process within the joint, the exigency of arresting motion

to save the joint from immediate pain causes the muscles to take on a contraction of such a rigid and permanent character as to be a condition of perpetual wounding of the parts. Their own excessive action, as well as their inelasticity, constitutes a continued source of severest injury. Hence there is established a self-continuing traumatic condition calculated to increase and prolong any diseased action once commenced in this joint; the more the disease, the more the muscular contraction and rigidity to avoid motion, and the greater the pressure and injury to the affected tissues. . . . But add motion to a diseased and compressed joint, and can we wonder at the destructive course disease of the hip joint ordinarily runs? . . . It is pressure, or motion under pressure, which is the destructive agent." The first indication is "to relieve the pressure in the joint due to muscular contraction by temporarily destroying the muscular irritability and contractility. . . . The indication for arresting motion in the joint . . . pertains only to a condition of rigid muscular contraction and consequent pressure in the joint. But no such necessity exists after the muscular rigidity has been overcome to the degree of entirely removing all pressure within the joint. On the contrary, motion in the joint without pressure is not only not injudicious, but it is highly beneficial." Pages 25, 26: In regard to the first indication, "I mean not only the increased muscular action which is incidental to the disease, with the consequent increased pressure in the joint, but all muscular action, together with all pressure in the joint, ought to be removed, as the first step of any treatment which would carry out the principle of treatment of this disease by extension and counter-extension. A treatment which purports to be this, but which stops short of relieving all pressure in the joint by means of overcoming all muscular action, is not this treatment at all, but something else far different in principle. And here is where so many think they are adopting the treatment by extension, but, not carrying it far enough to destroy, temporarily at least, the irritability and contractility of the muscles, fail of success. Either through not conceiving that the legitimate object of antagonizing the muscles by counter-force is to entirely overcome them, or not having mechanical appliances capable of producing such a result, they must necessarily fail of realizing any of the advantages of this treatment. It is not enough to stretch the muscles; they must be stretched till they yield. And they must be kept stretched and relaxed till the disease in the joint subsides." Page 38: "I am speaking of a mechanical treatment of disease of the hip joint which is capable of actually, not seemingly, overcoming—that is, temporarily destroying—the action of all the muscles concerned in the movements of the thigh, for the purpose of relieving all the pressure, not a part of it, in the joint."

On Some Elements of Diagnosis in the Different Stages of Diseases of the Hip Joint. *Medical Record*, May 8, 1875, p. 318: "I follow one indication—viz., to overcome completely the muscular action. I use the counter-extending force, not till the pain, if any exists, is relieved, but till the muscles relax."

Observations on the Mechanical Treatment of Disease

of the Hip Joint. *Boston Medical and Surgical Journal*, March 6, 1879, p. 318: "The pressure from irritated muscles at this time is a much greater evil than motion alone could be. To overcome the injurious pressure from irritated muscles is, then, imperative. Hence we must stretch them." Page 319: "We must carry extension until the muscles relax, and then we must maintain the extension until they lose their irritability and the inflammation in the joint has been given time to become retrogressive. . . . The limitation is reached at the point of time when the muscles have become soft and compressible and the interstitial movements have become completely retrogressive. From this moment reflex irritation of the muscles ceases entirely, and with it the necessity for extension."

Thomas, H. O. *Diseases of the Hip, Knee, and Ankle Joints*, Liverpool, second edition, 1876, p. 10: "Continuity of extension 'per se' is not a remedy in hip-joint disease, as I shall subsequently show; in its application it involves unavoidably a fractional degree of fixation which is sufficient to mask the evil of this ridiculous malpractice."

A Review of the Past and Present Treatment of Diseases of the Hip, Knee, and Ankle Joints, Liverpool, 1878, p. 19, footnote: "All forms of extension in joint disease involve inseparably in their application a certain amount of fixation."

Velpeau. Discussion in the Surgical Society of Paris. *Bulletin de la Soc. de chir.*, 1865, p. 126: "For twenty years I have advised extension and counter-extension in my lectures and have used it in my practice. It is an excellent method of restraining the pressure of the articular surfaces."

Volkman, R. "Distraction" was advocated by Volkman in 1865 as a means of reducing pressure between the surfaces and relieving pain. Monod, *Arch. gén.*, 1878, pp. 706, 707.

Watson, John. Discussion in the New York Academy of Medicine. *American Medical Times*, May 11, 1861, p. 310: "I placed her [patient in acute stage of hip disease] upon the straight apparatus as if she had a fracture of the thigh. I had hardly put on the counter-extension before the girl was entirely free from pain. It operated beautifully and instantly."

Willard, De Forest. Splint for Hip Injuries, including Hip-joint Disease and Fractures of the Femoral Neck. *Philadelphia Medical Times*, November 6, 1880, p. 72: "All hip-disease splints do good only by fixation."

Wood, John. On the Employment of Double Extension in Cases of Diseases and Injuries of the Spine and Pelvic Joints. *British Medical Journal*, June 5, 1880, p. 837: "By extension the pressure on the joint surfaces produced by the tonic contraction of the muscles is relieved, or almost entirely prevented."

Wyeth, John A. Hip-joint Disease successfully treated by a Combination of Sayre's Long Extension Splint and Hutchinson's Elevated Shoe and Crutch. *Medical Gazette* (New York), April 17, 1880, p. 243: "Extension is made by means of the screw key until there is freedom from pain, and a comfortable fixation of the limb. . . . I do not think that anything will secure the uninterrupted fix-

tion and extension of the joint so well as the long splint, in connection with the complete suspension of the leg."

Yale, L. M. Certain General Considerations respecting the Mechanical Treatment of Chronic Diseases of the Joints, with Especial Reference to the Use of Traction. *Medical Record*, January 12, 1878, p. 27: "When the muscular spasm is urgent, fixation can not be secured save by the use of a force as constantly acting as that which is to be overcome, and the agent best adapted to this purpose is traction, or, as it is generally called, extension. The word extension is objectionable because of its obscurity, since it is also used as the opposite of flexion." "The relief gained is not, as was formerly supposed by some, from separation of diseased surfaces. This separation is scarcely possible under any amount of force likely to be employed by a surgeon; and, again, it is very probable that whatever separation could be accomplished has already resulted from the effusion within the joint. The relief is gained simply from the prevention of muscular contractions which violently grind together the inflamed and perhaps eroded surfaces. The aim of the surgeon should then be, not to use all the traction that can be tolerated, but to use the smallest amount that will insure rest of the articulation. . . . Then, when the relief of the pain allows the muscles to relax, the direction of the traction may be changed."

SOME ADDITIONAL NOTES ON A MYXOSPORIDIAN INFECTION IN THE COMMON TOAD.

By J. B. WHINERY, M.D.,
GRAND RAPIDS, MICH.

THE increasing importance which is being attached to that class of unicellular organisms, the *Sporozoa*, in human pathology, makes it very desirable to become acquainted as far as possible with their biology. The instances of sporozoan infection in man, while increasing in frequency because of an increased knowledge of this class of parasites, are still too meager to permit of a satisfactory study of the infecting organism. We must therefore look to the lower animals in which sporozoa are frequent parasites to enable us to prosecute this study in an experimental way. In fact, in the study of the protozoa, as in the study of the bacteria, the bulk of our experimental work must be done with the lower animals for very obvious reasons.

When it is recalled that the tendency of an increasing number of pathologists is to look to these sporozoa as the exciting cause of carcinoma and other neoplasms of man, the immense importance to the pathologist of all material relating to the biology of any of these animal forms will be readily admitted. In no other line of pathological research, save bacteriology, is the value of the comparative method of study more forcibly shown than in the recent investigations on the pathogenic *Protozoa*.

At the outset of our work in this most interesting subject the importance of a uniform and precise nomenclature will be readily appreciated. In order to bring attention to

a very desirable nomenclature for one group of the sporozoa—the myxosporidia—and at the same time to bring to the notice of pathologists these very accessible and convenient objects for study, these notes on a species of myxosporidia infesting the common toad are submitted.

In the *Journal of the American Medical Association*, vol. xx, May 20, of the present year, is an article on Myxosporidia in the Common Toad, with a history and description of these organisms, by Dr. A. P. Ohlmacher, of Chicago. He has treated the subject in such a thorough manner that what may be said here will simply be slight additions to that article.

While prosecuting some studies in the pathological laboratory of the Chicago Policlinic under Professor Ohlmacher, the writer's attention was called to the myxosporidia in the toad by finding the parasites in the tubules of kidney tissue which he was studying. Following the suggestion of Dr. Ohlmacher, and under his direction, these observations upon the organisms were made. Since the organisms were found in the living animals it gave us an opportunity of studying them in the fresh state, and thus of adding some data to Ohlmacher's descriptions, which were based entirely on a study of the *Myxosporidia* in hardened tissue, no fresh preparations being available at that time.

The studies were made on the common toad (*Bufo lentiginosus* Shaw). All the animals examined were obtained from Sycamore, De Kalb County, sixty miles west of Chicago, in northeastern Illinois. There were about a dozen toads in all, and after being brought to the laboratory the toads were kept in the laboratory sink, and taken from this sink from time to time for examination.

The extent of the infection must vary with the surroundings and environment of the animals. Seven toads were examined in the laboratory—two males and five females—and out of this number one male and four females were found to be infected by the parasites. It is quite probable also that the fatality was increased by the fact of their confinement in a comparatively small space. It was noticed that during the confinement the toads became stupid and moved about but little, and that in two or three days they began to die; every day or two a toad would die. Some of them lived about three weeks. Before death no external change in the appearance of the animals was noticed, with the exception of a distention of the abdomen in some cases. On opening the abdominal wall, some increase in the amount of peritoneal fluid usually was noticed, but never a large amount in the toads examined by the writer, as was the case in the toad examined and described by Dr. Ohlmacher. The abdominal viscera showed signs of congestion. The kidneys were enlarged and in a congested state. The intestines were usually distended with gas. The parasites were found only in the tubules of the kidneys and in the urinary bladder. They were always present in the spore stage. Ohlmacher stated that they probably killed their host by increasing in numbers in the tubules, to the extent of arresting the kidney secretion by mechanical pressure. This view seems very plausible on account of the large number of parasites in the kidney tubules. The number of organisms in the tubules varied in different

specimens; sometimes only scattering tubules contained them, while in other cases large areas of tubules were filled with parasites. They were never found in the glomeruli or in epithelial cells. In the bladder the parasites were found in the folds of the mucous membrane. Ohlmacher has found them in the urine of toads collected in a clean basin during chloroform narcosis.

Dr. R. R. Gurley, of Washington, who has examined Ohlmacher's preparations, designates this myxosporid of *Bufo lentiginosus* the *Chloromyxum Ohlmacheri*, in conformity with his recent work on the classification of myxosporidia, which is based on the morphology of the spore (On the Classification of the Myxosporidia, extract from the *Bulletin of the U. S. Fish Commission*, pp. 407 to 420, July 15, 1893). According to this authority, very little is known in the literature of myxosporidian infection in amphibia. Dr. Gurley has advanced a very desirable nomenclature in the description of these *Sporozoa*, and, in order to reconcile these terms with those employed by Ohlmacher, the following table is given and a figure introduced to illustrate the parts:

Gurley's term.	Ohlmacher's term.
Shell.....	Capsule.
Capsule.....	Pole corpuscle.
Sporoplasm.....	Plasmatic mass.
Filament.....	Projectile thread.
Anterior and posterior ends. . .	Sides.
Sides.....	Ends.
Pericystic space.....	Vacuole.

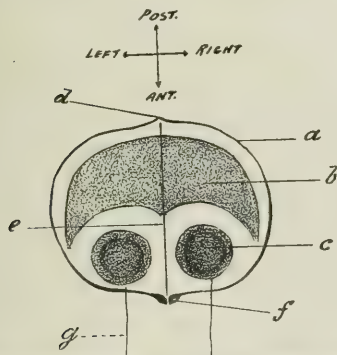


Figure (diagrammatic) representing a spore of *Chloromyxum Ohlmacheri*, with designation of the various parts after the terminology proposed by Gurley. The arrows indicate the ends and sides of the spore as follows: *ant.*, anterior end; *post.*, posterior end. Right and left sides. *a*, spore shell; *b*, sporoplasm; *c*, capsule; *d*, posterior micronate projection (the valve junction ridge in optical section); *e*, valve junction ridge; *f*, anterior micronate projection with thickening; *g*, filament, much shortened.

Detailed Morphology of Spore.—It measures about 6 μ from end to end and about 8 μ from side to side. There is a slight variation in the size of spores in the same preparation. In shape the spore is slightly oval. It is surrounded by the shell, which shows a distinct striation. The striae appear to proceed from the shell of each lateral half and center at the valve junction, midway between the anterior and posterior ends. At each end of the spore is a slight

projection termed by Gurley the "micronate projection," and running between these two points is a faint transparent line called the ridge, marking the junction of the two valves. The micronate projections represent the ridge as seen in the transverse optical section. It will thus be seen that the spore is composed of two valves, the valve junction plane dividing the spore into two symmetrical halves. Two small knob-like thickenings can be seen at the anterior micronate projection, one belonging to each valve. These thickenings show well in the fresh, unstained spore. The spores often show cleavage at the anterior end along the line of the valve junction. The capsules are two in number, are round, measuring from 3 μ to 3.5 μ on an average, and are situated in the anterior end of the spore, one in each valve. A filament arises from each capsule, and, penetrating the shell, leaves the spore at the anterior end. The capsules seem to have the power of projecting and drawing in these filaments. In length the filaments often exceed four to eight times the diameter of the spore. Just after entering the spore and before reaching the capsule, they often appear in a spiral roll preparatory to being collected in the capsule. The sporoplasm is situated in the posterior end of the spore, extending to the sides, in form approaching a crescent. It does not completely fill the space posterior to the capsules. Under high power ($\frac{1}{2}$ Leitz) it appears homogeneous and finely granular. In the fresh preparations I have always been able to see the more highly refractive granules in the sporoplasm, which are designated nuclei by Thélohan. These nuclei apparently varied in number and position in fresh spores, and I was unable to find any constancy either in their number or position. The nuclei never appeared in hardened and stained preparations, and as Ohlmacher did not have the opportunity of examining the living spores when his first communication was made, this doubtless accounts for his statement that he was never able to find the nuclear structure in the sporoplasm. The true vacuole is a space in the sporoplasm and such a vacuole the writer was never able to discern in this species. Ohlmacher applied the term vacuole to the unoccupied space about the capsule ("pericystic space," Gurley); hence his statement that this spore contained a vacuole. In containing no sporoplasmic vacuole, the *Chloromyxum Ohlmacheri* agrees with other *Chloromyxidae*.

Micro-chemistry.—The parasites were studied in the fresh state, and also after treatment with various fixing and staining agents. Fresh preparations were obtained by teasing kidney tissue, and examining this in a hanging drop, or in fluid media of different kinds. In the fresh state, a dilute solution of potassium hydrate caused a swelling of the spore, and brought out the shell and filaments plainly. Glycerin acts well as a medium for the examination of the fresh spore. Probably the best medium to use in studying the hanging drop is urine from the toad. A watery solution of iodine colors the spore a uniform brown. In fixing cover-glass preparations, no advantage was gained by fixing them in alcohol and ether, or in osmic acid, over that obtained by passing the covers through a flame. In the fresh state the filaments were made plainer in fixed cover-glass preparations by a number of reagents. Methyl

blue in aqueous solution and Babes's aniline-water safranin are quite satisfactory in bringing the filaments into view. Of the many agents used in fixing tissue the following were tried: Flemming's solution, Heidenhain's mercuric-chloride solution, absolute alcohol, Carnoy's acetic alcohol, and Perenyi's fluid. In the case of all of these fixing agents the tissue was carried through by the usual methods and imbedded in xylol-paraffin. Stained preparations from tissue fixed in mercuric-chloride solution, Carnoy's solution, and absolute alcohol gave the best results. Flemming's solution and Perenyi's fluid are unsuitable as fixing agents on account of the shrinking and distortion of the spores induced by them. Numerous stains and combinations of stains were used with varying results. With almost any stain the capsules show the greatest affinity for the coloring matter, and the intensity varies somewhat in different spores. Pfitzner's safranin is especially good as a staining agent, with a striking affinity for the capsules. In the case of a double staining with fuchsin and iodine green (Russell's method), or with safranin and methyl blue (Ohlmacher's method), I was able to demonstrate the dichromophilism of the capsules and sporoplasm as described by Ohlmacher. This chromophilous reaction is a very striking and possibly significant phenomenon in these organisms.

From these studies it appears that the *Chloromyxum Ohlmacheri* is a common parasite in the common toad, at least in the locality mentioned; and that this organism possesses distinct specific features. Thus far nothing is known of the life history of these *Mycosporidia*.

LABORATORY OF PATHOLOGY, CHICAGO POLICLINIC, Aug. 25, 1893.

The Samuel D. Gross Prize.—The Philadelphia Academy of Surgery gives notice that the quinquennial prize of one thousand dollars under the will of the late Samuel D. Gross, M. D., will be awarded on January 1, 1895. The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens." It is expressly stipulated that the successful competitor, who receives the prize, shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery. The essay, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before January 1, 1895. Each essay must be distinguished by a motto and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

The Death of Dr. Charles Warrington Earle, of Chicago, on November 19th, removes a physician well known in New York. He was a member of the staff of the Cook County Hospital and of that of the Wesley Hospital. He was professor of operative obstetrics in the Post-graduate School and had held a chair in the Woman's Medical College. He was a native of Vermont and in his forty-ninth year.

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THE DEFECTIVE REGISTRATION OF CAUSES OF DEATH.

ACCURACY and uniformity in the matter of vital registration are admitted to have great value in the solution of all sanitary problems. They are, however, seldom attained, and most registration officers at the present time are not so given to boasting of such attainment as they were a generation ago. If one locality excels another in the completeness of its registration work, and the value of its tabulation, it is, in our opinion, chiefly due to the efficiency of the office of that particular place or to the enthusiasm of the gentleman who holds the office of register. It is the man who is the master, and not the slave, of his statistics who develops the excellence lying dormant in figures.

In the last Connecticut State Board of Health Report, the secretary, Dr. C. A. Lindsley, points out a cause of inaccuracy that is worthy of serious attention by all students of vital statistics. His observations are pertinent to the reports of many State boards, as well as to those of smaller offices that are susceptible of the same sort of imperfection. The difficulty we refer to may, in a word, be said to be this: The report-maker is too remote from the matter reported upon. The original certificates do not come before the register, or superintendent, or secretary, or whatever the official title may be. In Connecticut there are 168 town districts and 168 different town registers, the greater part of whom have no familiarity with the work. These persons are the legal custodians of the original death reports. The State register must report the facts that filter in to him through 168 different officials, some of them village Dogberries. The "personal equation" must inflict its self all too often upon the scientific compiler at headquarters, for, as he says, the abstracts necessarily differ greatly in accuracy, in fullness of detail, and in other important particulars. As an illustration of the carelessness, indifference, or possibly ignorance of some who prepare the abstracts, the following remarkable causes of death, reported in the abstracts, may be mentioned: puerperal fever in a boy under one year old; suicide by infants under one year of age; puerperal hemorrhage in a man over eighty years; puerperal septicæmia in a boy aged five; and childbed fever in women aged from sixty to eighty. "Effusion of head" wrecked the life of an infant under a year old, and one old gentleman, aged seventy, perished by sterility. From all this it must be evident that some at least of the town reporters are not conversant with many of the more obvious of the medical terms employed in certificates of death. Furthermore, it must be evident that the hands that pen such absurdities and blunders as the foregoing and many

others quite as misleading must also be prone to transmit mis-statements, and these in turn become the source of error on the part of those who have need to consult the death records for sanitary data.

The remedy consists in making the State superintendent the custodian of the original returns. These could then be studied, compiled, made use of to the best advantage under the eye of a person skilled in the uses of statistics. This is done in nearly all the States that reap the best results from a collection of the facts relating to "the tripod of social life—birth, death, and marriage." As matters now are, under the existing laws that govern the work of Dr. Lindsley, a single error has been known to entail, in its correction, the writing of six letters. This implies an annoying waste of energy and loss of time. A little intelligent legislation on this subject would infuse into Connecticut registration a material scientific improvement.

It is generally assumed that registration in Great Britain is nearly faultless, that during the past fifty years it has grown up into perfect system. This is far from being the fact. A parliamentary committee reported early in September concerning various defects, and their means of remedy, in regard to the detection of the causes of death that might be due to poison, violence, or criminal negligence. The proportion of uncertified deaths in England is not far from 2.7 per cent. of the total mortality; in Scotland it is as high as 5.8 per cent., and in certain small districts it is even higher. This showing is regarded as a reflection upon the coroner's system, in part, but the chief onus must be borne by the legislative branch of the government, since it is admitted that an additional money appropriation is required to supply a system of investigation of obscure deaths such as exists in Paris and other large French cities and also in Massachusetts.

The committee was pained to observe that uncertified deaths were at their maximum during those periods of life when the individual was not self-supporting, when he was not economically valuable as an earner of wages. The committee recommends that the class of "uncertified deaths" be no longer recognized, and that the necessary means be provided whereby a medical certificate shall be obtainable in every case of death where the cause is not ascertained by means of a regular physician's report. In cases where it is impracticable to have the physician inspect the body after death, a certificate of the fact of death should be supplied by two neighboring witnesses—this to be affixed to the statement of the *causa mortis* report of the attendant. The habit of handing death certificates to representatives of the deceased should be discontinued; these documents should be sent to the official register. Many other valuable suggestions are contained in the committee's report on the non-reporting of stillbirths in cases of seven months' development and on the disposal of dead bodies without official permit. It is important to every civilized community that no person shall disappear from his place without some satisfactory evidence being obtained as to the cause of his disappearance and as to the bourne whither he has been taken.

MINOR PARAGRAPHS.

INOCULATION IN TYPHOID FEVER.

In the *Deutsche medicinische Wochenschrift*, No. 41, Dr. E. Fraenkel reports a number of cases of typhoid fever treated by gluteal injections of cultures of the typhoid bacillus. Cultivation of the bacteria in thymus-bouillon very materially diminished its virulence. The cases are not published in detail, but Dr. Fraenkel is of the opinion that the treatment modified and shortened the course of the fever, although he did not see that it prevented relapses or accidental complications. Professor Rumpf publishes in the same journal the report of thirty-six cases of typhoid fever treated by gluteal injections of culture of the *Bacillus pyocyaneus*. He is of the opinion that the course of the fever is modified both as to its intensity and as to its duration.

THE ST. LOUIS AMBULANCE CAR.

It appears that the street-car ambulance service in St. Louis, of which we lately made mention, is not yet actually in operation. A bill making an appropriation for the purpose is before the House of Delegates, however, and, as we learn from the *St. Louis Post-Dispatch*, at a recent meeting of the Committee on Sanitary Affairs of that body Health Commissioner Homan cited our favorable comment on the idea, and added that he thought the first cost would be the only obstacle in the way of the project, and that when the service was once established it would work a saving of money to the city.

HARTFORD MEDICAL SOCIETY.

The medical society of the city of Hartford, organized in 1848, is to receive a fund for the erection of a building to be devoted to its purposes and to those of the medical profession of that city. It will be in memory of the late Dr. Ebenezer Kingsbury Hunt, formerly president of the Connecticut State Medical Society, in compliance with the terms of a bequest of the late Mrs. Mary C. Hunt, of Hartford, widow of the late Dr. Hunt. The medical school at Yale University will also fall heir to the sum of \$25,000 under the will of Mrs. Hunt.

ST. LUKE'S HOSPITAL.

The last annual report shows an average of 200 beds occupied during the year. The total number of days of treatment was, in round numbers, 73,000, at a total cost of \$113,000. This is equivalent to an average per-diem cost of \$1.49 for each patient. The total number of inmates was 2,100. The deaths numbered 234, of which about 80 were due to tuberculosis, directly or indirectly. The year ends on St. Luke's Day, October 18th.

ECPHYADITIS CAUSED BY ASCARIDES.

A CASE of this disease caused by an accumulation of ascarides in the vermiform appendix and its obstruction by them is reported by Dr. Gouraud and Dr. Martin-Durr in the *Gazette des hôpitaux*, No. 79. The inflammation was very intense, and resulted in an abscess which broke down and emptied itself into the bowel. An examination of the evacuated material disclosed quantities of ascarides.

THE CHOLERA MORTALITY AT MECCA IN 1893.

An officer of the Egyptian sanitary service, who was present in Mecca during a part of July, reports the prevalence of cholera

in many houses and tents, with a mortality so great that the interment of the dead was at times neglected. It is estimated that the pilgrims then in Mecca were 135,000 in number, and that at least one in ten was slain by the cholera.

THE WORK PERFORMED AT THE EMERGENCY HOSPITAL OF THE WORLD'S FAIR.

THE total number of cases admitted for treatment at the Columbian Emergency Hospital is reported to have been 18,500. There were twenty-three deaths in the institution, about equally due to medical and surgical causes. The proportion of fatal injuries among the employees was very low.

INFECTIOUS THYREOIDITIS.

E. JEANSELME contributes an article on this subject to the *Archives générales de médecine*. The case which attracted his attention was one of typhoid fever in which the symptoms of acute infectious thyreoiditis had come on about the fifth week of the disease. An abscess formed in the gland. Evacuation and microscopical examination of the contents revealed the Eberth germ.

ITEMS, ETC.

The Medical Society of the County of New York on the Regulation of the Practice of Midwifery.—The following is the report of a committee on the practice of obstetrics by midwives:

In presenting a proposed amendment to the medical laws of the State of New York involving the practice of obstetrics by midwives, the committee appointed by the Chair in April last desires to call the society's attention to the following facts:

1. There is at present no law in the State of New York for the regulation of midwives in the practice of obstetrics. Any person can so practice after registering and paying a fee of fifty cents.

2. The number of persons at present acting as midwives in the city of New York is thought to be over three thousand.

3. The number of births reported annually by midwives is within a few hundred of the number reported by physicians. That number is about twenty-five thousand.

4. In the matter of stillbirths, the percentage here is nearly three times greater than with the midwives in Berlin, where the practice is regulated.

5. There is good reason for the belief that criminal abortion is frequently practiced by some of the midwives of this and other cities of this State.

In considering means for improving the anomalous situation at present existing in this State—namely, that physicians who devote years of study in preparation for obstetric and other work are not allowed to practice until stringent requirements have been met according to law, while the most ignorant, by classing themselves as "midwives," can without question care for women passing through that perilous "physiological process" child-bearing—the committee has considered the following questions:

1. Should the practice of obstetrics by midwives be done away with altogether?

2. If so, could it be prevented?

3. If allowed, should means for the education of midwives be established?

4. How much preliminary qualification should be required?

5. Would not limited requirements, a reasonable registration

and fee, and strict limitation of their obstetric privileges, by which a large percentage of cases would be thrown into the hands of physicians, prove most feasible?

Without going too minutely into the details of the views and arguments expressed, it was the unanimous opinion of the committee that, on the one hand, the trend of obstetrical practice was and should be toward a scientific level beyond the possible attainment of midwives, and that the latter were an importation which should not be cultivated as a branch of our profession; but that, on the other hand, it would not be feasible to undertake their complete removal.

Stringent requirements as regards antisepsis and close limitation of the midwife's practice to the most normal conditions, requiring that a physician be summoned for all abnormal conditions, and the restriction of her license in not permitting her to make returns of stillbirth or treat puerperal diseases—these, it was thought, would bring about the best results.

Similar methods have been put to the test in other States—New Jersey, Illinois, and Minnesota, and in Erie County in this State—with most marked improvement. The number of midwives practicing has been reduced, the percentage of stillbirths lessened, the development of fevers greatly reduced, and criminal malpractice brought nearer the eye of the law.

Your committee unanimously proposes the following as in its opinion a much needed amendment to the present medical laws of the State of New York:

An Act to Regulate the Practice of Midwifery in the State of New York.—Be it enacted by the Senate and Assembly of the State of New York—

1. That every person practicing midwifery in any of its branches shall possess a certificate from the State Board of Medical Examiners, as hereinafter provided.

2. And be it enacted, That every person now practicing midwifery in the incorporated cities of this State shall, within thirty days after the passing of this act, personally present to the State Board of Medical Examiners an affidavit setting forth the name, nationality, age, authority, location, and length of practice, together with a certificate of good moral character from some registered physician resident of the same district; whereupon the board, on receipt of a fee of one dollar, shall issue a certificate, signed by its president and secretary and bearing the seal of said board, entitling the person named therein to practice midwifery in this State.

3. And be it enacted, That every person hereafter beginning the practice of midwifery in this State shall appear before the State Board of Medical Examiners and submit to such examinations in midwifery as the board shall require, and, if such examination is satisfactory to the examiners, the said board shall upon the receipt of a fee of five dollars, issue a certificate, the same as provided in section two of this act.

4. And be it enacted, That the person so receiving said certificate shall file the same with the clerk of the county in which she resides, and said clerk shall file said certificate, and enter a memorandum thereof, giving the date of said certificate and the name of the person to whom the same is issued and the date of said filing, in a book to be provided and kept for that purpose, and for which registry the said clerk shall be entitled to demand and receive from each person registering the sum of twenty-five cents.

5. And be it enacted, That the State Board of Medical Examiners are hereby authorized and empowered to execute the provisions of this act, and shall hold examinations of candidates for certificates in midwifery at such times and places as may be deemed by them expedient.

6. And be it enacted, That the State Board of Medical Examiners may refuse licenses to persons of bad character, or

guilty of unprofessional or dishonorable conduct, and may revoke licenses for like cause, or for neglect to make proper returns of births to the various health officers.

7. And be it enacted, That this license does not give any person practicing midwifery within the meaning of this act the right to perform version or treat breech or face presentations, or do any obstetric operation requiring instruments, or treat any abnormal condition, except in emergency, or make returns of stillbirths or puerperal diseases to the various health officers, but shall call in a qualified physician to treat the same.

8. And be it enacted, That any person shall be regarded as practicing midwifery within the meaning of this act who shall publicly profess by advertisement, by sign, by card, or otherwise to be a midwife, or who shall for a fee attend to women in childbirth, but nothing in this act shall be construed to prohibit gratuitous service in case of emergency or to the legally qualified physicians or surgeons of this State.

9. And be it enacted, That any person practicing midwifery in this State without first complying with the provisions of this act shall be guilty of a misdemeanor and shall be punished by a fine of not less than ten dollars nor more than fifty dollars, or by imprisonment in the county jail for not less than ten nor more than thirty days, or both, in the discretion of the court.

10. And be it enacted, That all acts or parts of acts inconsistent herewith be and the same are hereby repealed, and that this act shall take effect immediately.

Respectfully submitted,

Committee: { EDWARD A. AYERS, M. D., *Chairman*,
SIMON BARUCH, M. D.,
HENRY R. DEXTON, M. D.,
S. SEABURY JONES, M. D.,
HERMAN L. COLLYER, M. D.

The Prize of the American Neurological Association.—

The association offers a prize of \$200 for the best essay on any subject connected with neurological science. This competition is open to physicians who are legal residents of States in North and South America. Essays must be sent to the secretary of the association, Dr. Græme M. Hammond, on or before the first day of May, 1894. Each essay shall be accompanied by a sealed envelope containing the name and address of the author and bearing on the outside a motto, which shall also be inscribed upon the essay. Essays shall be type-written, in either the English or French language, and with the pages securely fastened. The council of the association reserves the right to reject any or all essays judged unworthy of the award. Each essay must exhibit original research, and none will be accepted that has previously been published.

The International Medical Congress.—

The chairman (Dr. A. Jacobi) of the American National Committee of the International Medical Congress, which was postponed from September 24th on account of cholera prevailing in Italy, has been notified by the Secretary General that the congress will be held at Rome from March 29 to April 5, 1894. Instructions and documents relating to the journey, etc., are promised for the near future.

Dartmouth Medical College.—

The annual graduation exercises of this school, held last week, were those of the ninety-sixth class. The school now has a corps of twenty professors and prosectors and a class of over a hundred students. Dr. Adams, of the New Hampshire Medical Society, delivered the anniversary oration.

The Death of Dr. Henry Bronson, of New Haven, re-

moves one of the senior ex-presidents of the Medical Society of

Connecticut. He was born in Waterbury in 1804. He received his medical degree from Yale College in 1827, and thirteen years later the A. M. degree. He had two terms in the professorate of materia medica in that college, amounting to seventeen years in all. Portions of his professional life were spent at Albany and at Springfield, Mass., but about fifty years ago he definitively established himself at New Haven. Among his contributions to medical literature was an historical sketch of malarial fever in the vicinity of the city where he dwelt. It is reported that Dr. Bronson left a large estate, notwithstanding the fact that he had been a confirmed invalid during the last two decades of his life. The date of his death was November 26th.

The Nursery and Child's Hospital.—

We learn that Dr. Edward L. Partridge has resigned from the medical staff.

Naval Intelligence.—Official List of Changes in the Medical Corps of the United States Navy for the week ending November 25, 1893:

BARNUM, M. W., Assistant Surgeon. Detached from the U. S. Steamer Richmond and ordered to the Kearsarge.

ROSS, J. W., Surgeon. Detached from Pensacola Hospital and to proceed home and await orders.

BALDWIN, L. B., Surgeon. Detached from the U. S. Steamer Michigan and ordered to the Pensacola Hospital.

SAYRE, J. S., Passed Assistant Surgeon. Ordered to the Michigan.

CAVELL, A. C., Passed Assistant Surgeon. Detached from the Kearsarge and granted leave for three months.

LUMSDEN, G. P., Passed Assistant Surgeon. Detached from the ironclads, Richmond, Va., and ordered to the Kearsarge.

HESLER, F. A., Passed Assistant Surgeon. Detached from the U. S. Steamer Vermont and ordered to the ironclads, Richmond, Va.

LEYS, JAMES F., Assistant Surgeon. Detached from the Laboratory, Brooklyn, N. Y., and ordered to the Vermont.

PIGOTT, M. R., Assistant Surgeon. Detached from the U. S. Steamer Kearsarge and ordered to the Richmond.

Society Meetings for the Coming Week:

MONDAY, December 4th: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private), New York; Brooklyn Anatomical and Surgical Society (private); Utica, N. Y., Medical Library Association; Corning, N. Y., Academy of Medicine; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

TUESDAY, December 5th: New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Ogdensburg, N. Y., Medical Association; Medical Societies of the Counties of Herkimer (semi-annual—Herkimer) and Saratoga (Ballston Spa), N. Y.; Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore).

WEDNESDAY, December 6th: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Society of the County of Richmond (Stapleton), N. Y.; Medical Microscopical Society of Brooklyn;

Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

THURSDAY, December 7th: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, December 8th: Yorkville Medical Association (private), New York; Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

SATURDAY, December 9th: Obstetrical Society of Boston (private).

Letters to the Editor.

THE BOARD OF HEALTH AND PRIVATE PATIENTS WITH INFECTIOUS DISEASES.

16 EAST THIRTIETH STREET, November 27, 1893.

To the Editor of the New York Medical Journal:

SIR: A recent experience with the Health Department prompts me to ask if you or any of your readers can give me the information I have failed to obtain from that department. Some time ago I reported a case of diphtheria occurring in a private house. Shortly after my report an inspector visited the house and demanded to see the patient in order to obtain a culture, saying to the mother of the child that "if the physician knew his business he would have sent them a specimen." His conduct as reported to me was discourteous. I have written twice to the department asking by what right such a demand was made. To this question no answer has been received. Has there been any recent enactment which gives them such right? No offer was made to examine the sanitary condition of the premises, or to find out what precautions were being taken for the protection of the other inmates. If the board of health has made such a law they should have notified the physicians. If there had been any question of diagnosis I would have taken a culture for my own satisfaction. In their zeal to obtain this, it seems to me they overlooked matters more important than the diagnosis.

STUYVESANT F. MORRIS, M.D.

Proceedings of Societies.

PHILADELPHIA ACADEMY OF SURGERY.

Meeting of October 2, 1893.

The President, DR. WILLIAM HUNT, in the Chair.

Carbolic Acid Used in Full Strength in Surgery.—Dr.

OSCAR H. ALLIS read a paper as follows:

Surgeons in early days of antiseptic surgery attributed their success to carbolic acid. As introduced, it was employed in a dilute aqueous or oleaginous solution. For a time it was the sole antiseptic. To-day it is mainly used in general surgery as a bath for surgical instruments. Few surgeons will demand a reason for its abandonment. Few have not personally experienced its benumbing effects, and have thus been able to assign the collapse following its employment to something different than loss of blood, shock of operation, or anæsthetic.

With such an experience of carbolic acid in its dilute form I confess that I was quite astonished to learn from my friend Dr. B. F. Gardner, of Bloomsburg, that he was in the habit of using the article in its full strength upon extensive cut surfaces, and that, too, with the happiest results. As this article owes its entire value to Dr. Gardner, I will give in detail his method.

When Lister introduced his paste Dr. Gardner used it quite extensively. After an application to quite an extensive wound surface he was surprised to find it turn white, and that he had used pure carbolic acid. He therefore immediately washed the surface and dressed the wound, keeping it open until oozing had ceased. The case did so well that it inaugurated with him a line of treatment that he has extensively employed. As a typical application let me take an amputation of the female breast. After its removal and the ligation of the bleeding vessels carbolic-acid crystals, dissolved in sufficient water for solution, are applied with a sponge to all parts of the cut surface. Immediately upon the application of the acid the tissues turn white, which is a guarantee of its thorough action. The wound surface is then washed with water previously sterilized by boiling, and then approximated with provisions for drainage. This is especially necessary, as for twenty-four hours the oozing must find ready exit. During the first few days there is a slight local hyperæmia along the borders of approximation, but this declines without crisis.

Dr. Gardner claims for carbolic acid applied in official strength:

1. That no systemic absorption attends its use, and hence no danger, no shock.
2. That it is a local anæsthetic. Hence there is not as much pain after the operation.
3. That it is in a measure a hæmostatic, acting especially upon the capillary vessels.

I have taken the removal of the mamma only as an illustrative case. In all operations outside of the pleuritic and abdominal cavities, such as amputations and resections, Dr. Gardner resorts to it.

In hydrocele he lays open the sac freely, then applies carbolic acid to the tunica vaginalis, and concludes with packing or drainage. The operation is not followed by excess of any kind, and recovery is prompt. He has used it in gunshot wounds of the knee and ankle. If he gets such a case after supuration has set in he freely opens the joint, applies the carbolic acid to every part, washes out all excess freely, secures ample drainage with fixation, and confidently awaits the result. Ankylosis may follow, but this will depend on the extent of the injury, the delay in treatment, the conduct of the patient. Dr. Gardner has used bichloride of mercury, hydrogen peroxide, iodoform, etc.; none of them has answered the claims made for them; all have disappointed him, but pure carbolic acid never.

I have said that Dr. Gardner does not use this upon serous membranes—i. e., within the abdomen. I must modify this statement. In a case of strangulated hernia, in which he found patches of sphacelus—not deep, but threatening—he cautiously applied the pure acid and returned the gut. Fortunately, the strangulation had been arrested by operation in time to save the gut. Nothing eventful in the subsequent history, which was speedy.

I do not know Dr. Gardner's theory of the actions of this powerful drug, and shall attempt no explanation. The turning of the wound surface white is due probably to the coagulation of the albumin of the tissues and fluids of the wound surface, and not that the acid has a necrotic effect. That it does not produce a true destruction of tissue may be inferred that after

a large breast or thigh amputation he will have primary union and no suppuration. In its use in hydrocele a half drachm or more is injected into the tunica vaginalis, and resolution without suppuration ensues. It is possible that by its action upon the wound surface an action similar to that obtained by heat may be produced, and thus facilitate repair.

I will conclude this article by briefly stating my own experience with it.

On entering the wards of the Presbyterian Hospital I found that one of my amputations of the thigh had not done well, and looking at the stump, found it swollen and of an angry, threatening character. The seam of approximation was perfect. I therefore removed all the sutures, and separating the flaps, found them almost in a stage of gangrene. Taking carbolic acid pure, I applied it freely, pressing it into the tissues with the sponge applicator, removed the excess, and, packing the space between the flaps, renewed the dressing. This was done without anæsthetic and without apparent pain. The exposed surfaces soon began to granulate, when they were approximated and recovery soon followed. I have also frequently applied it upon a carrier with cotton to sinuses and after curetting glands.

Dr. H. R. WHARTON asked if Dr. Allis had seen carbolic-acid poisoning from the use of the agent in this way. He had never seen much trouble from the use of carbolic acid except in children. At the Children's Hospital he had seen two or three cases where its use had produced a marked constitutional effect. In one instance where a large nevus was dressed with carbolic-acid application there was a dark-colored urine and other symptoms of poisoning.

Dr. WILLIAM J. TAYLOR thought the application of pure carbolic acid to a fresh, clean surface, such as was left after the removal of the breast, was totally unnecessary. If there had been a thoroughly clean skin, clean instruments, ligatures, and hands, there would be primary union. If such a fresh surface was smeared with carbolic acid there would be a large amount of oozing. His experience with a few cases where strong carbolic-acid solutions had been used, a number of years ago, had been that healing was much retarded. As an application to suppurating surfaces such as Dr. Allis had spoken of, and where one wished a cauterizing and disinfecting action, he considered carbolic acid one of the best agents that we had, and he used it frequently.

Dr. W. JOSEPH HEARN said that if carbolic acid was applied to a raw surface, otherwise healthy, one would expect to have a certain amount of necrosis of the tissues. Some cells would be destroyed, and afford a soil for the propagation of germs.

Dr. RICHARD H. HARTE said that Dr. Levis had been in the habit of using carbolic acid for its cauterizing effect. He remembered several cases where he had used it freely, producing large sloughs over the posterior surface of the thigh.

Dr. ALLIS said that, in regard to poisoning, Dr. Gardner alleged immunity from poisoning from the fact that the application seared the whole surface and closed the small vessels, and nothing was taken into the system. Dilute solutions were rapidly taken up. In one case, where he had operated on two herniæ in the same individual, there had been a good deal of collapse following the use of a dilute solution of carbolic acid.

He was not prepared to say whether it had a necrotic action or not. He did not understand how Dr. Gardner got primary union, using it as he did, if it had such an action.

He thought that Dr. Gardner had probably begun its use with the idea that there might be left after amputation of the breast some cells which it would destroy. He did not bring this forward thinking that any one would be led to use it in these cases, but there was a big lesson in this use of carbolic

acid. There were places where it was valuable—for instance, in deep sinuses and pus tracts. He had injected it into a psoas abscess so that it would run out—probably eight ounces—without the slightest constitutional effect.

He could subscribe to what Dr. Harte had said. Care must be taken that the carbolic acid did not come in contact with the skin. If it touched the skin it would blister it, but when applied to a raw surface it did not have the effect which we should expect. In a few cases where it had been injected into the tunica vaginalis the patients had almost died, but in a large majority of cases carbolic acid pure in hydrocele effected a happy cure and without suppuration, hence without necrotic action.

In collecting some cases of accidents in the treatment of hydrocele such cases had been reported to him.

As to whether or not the application in recent surgery was necessary or advantageous, he left that for individual opinion. He had seen bichloride solution do as much mischief as carbolic acid probably could do in preventing primary union.

Dr. L. W. STEINBACH said that a number of years before he had had the pleasure of assisting Dr. Levis in the removal of an ovarian cyst in private practice. At that time the spray was used. The assistant who had charge of the spray put the carbolic acid into the bottle and the water on top of it without mixing the two, so that a spray of pure carbolic acid was delivered into the wound and on to the operator's hands. The doctor's hands became so numb that he was unable to introduce the stitches. The woman, however, made an excellent recovery.

Of course every one knew the good success of Dr. Levis in the treatment of hydrocele with carbolic acid. He was careful that none got into the connective tissue or on the scrotum. The speaker had never seen an accident in any of his numerous cases.

A Report of Three Months' Service in the Jefferson College Hospital was read by Dr. W. JOSEPH HEARN.

The object of this report was not to include every minor operation, but only those which might prove of interest.

Fæcal Fistula.—A young woman, married, two weeks after her first confinement, suffered from a strangulated femoral hernia. Her physicians professed to have reduced the hernia under ether. Subsequently an abscess formed at the femoral ring, was opened, with escape of gas, pus, and some fecal matter. Four months after she presented herself at the hospital, suffering from an almost constant escape of gas and fecal matter from a small tortuous sinus below Poupart's ligament. By means of a very small flexible bougie, the author was enabled to find the way into the bowel. He cut down on this bougie, following up the sinus until the bowel was reached. As he could feel no spur, he concluded that there was simply a small opening in the bowel. He freshened the edges and closed the wound. Twenty-four hours after symptoms of obstruction of the bowel occurred, with peritonitis, followed by death in three days. A post-mortem examination revealed that, instead of perforation of the bowel with a small opening, a large section of the bowel had been caught in the ring, and at least two thirds of the circumference had been lost in the slough. The lesson taught him in this case and in other similar cases that he had seen, that the abdomen should be opened in the middle line or outside of the linea alba, in addition to dissecting down through the sinus, in order to find the condition of the bowel and the amount of lost tissue. This had been a case for lateral anastomosis.

Cancer of the Colon.—A second case of abdominal section had the following history: A woman sixty-three years old was admitted to the ward suffering with obstruction of the bowels of three weeks' duration. The abdomen was enormously dis-

tended, and there was fecal vomiting. An incision was made in the middle line below the umbilicus. The intestines were so much distended that it was impossible to ascertain the seat of obstruction. An incision was made into the small intestines and their contents were milked out. This procedure necessarily caused much fecal matter to be spilled in the abdominal cavity. After reducing the contents of the abdomen the obstruction was easily located. It was a carcinomatous contraction of the middle portion of the transverse colon, with extensive adhesions to the surrounding parts. As it was found impossible to remove the section of bowel involved, an artificial anus was made in the right side. The colon just above the ileo-cæcal valve was attached to the abdominal wall and, as the symptoms were urgent, immediately opened. The peritonæum was so tender and brittle, due to inflammatory infiltration, that it was with great difficulty that sutures could be made to hold. The same difficulty was encountered when he attempted to close the opening made in the small intestine. The parts were so thickened that it was almost impossible to invert the intestinal walls for the Lembert sutures. The intestines were returned with great difficulty into the abdominal cavity, which was then thoroughly irrigated. The patient rallied from the shock promptly. Her temperature did not go beyond 101° F. She improved daily, and left the house in four weeks almost as well as she was before the obstruction occurred. The carcinoma had given her but little trouble before the obstruction—not sufficient to cause her to call for medical advice.

Femoral Aneurysm.—A third abdominal section was for ligation of the external iliac artery for an aneurysm involving the femoral under and beyond Poupart's ligament and a large portion of the external iliac in the abdominal cavity. The patient was a man, aged forty, and in good health. He determined to do the transperitoneal operation. The artery was tied without much difficulty by placing the patient in the Trendelenburg chair and packing the bowels, away from the point where he wished to place the ligature, with large pads of antiseptic gauze. The patient made a good recovery, and left the hospital cured. The author had two years previously ligated the femoral artery of the same limb.

Two Cases of Amputation of the Penis for Epithelial Cancer.—In one case the glands in the left groin were involved, and were removed with much difficulty. The left limb was very œdematous, due to pressure of the enlarged gland on the veins. The difficulty of removal was due to the proximity of those glands to the veins. The patient made a satisfactory recovery.

Five Cases of Hydrocele were operated upon by the open method. That is, the sacs were incised for about an inch; the edges of the sac were caught with hæmostatic forceps to prevent difficulty in getting into the proper cavity. After the cavity was thoroughly dried with antiseptic gauze, pure diluessed carbolic acid was applied to every part of the serous membrane. Then an iodoform gauze drainage was inserted and left for forty-eight hours. Should the incision be larger than necessary, a few catgut sutures could readily be introduced, to partly close the opening. The drainage which this mode of procedure admitted of insured absolute success. Anæsthetics were not necessary, as the line of incision could be frozen with chloride of ethyl, and the application of the acid or any other caustic caused no more pain than when injected. Those cases where the sac was very thick and could not collapse, or where covered with calcareous plates, were not adapted for this mode of treatment. Only entire or partial excision of the sac would cure that class of cases. The operation of laying open the sac and attaching it to the scrotum, and then packing, he never performed, on account of the subsequent deformity.

Three Cases of Varicocele with Elongated Scrotum.—He had ceased to perform the operation by the subcutaneous method. Both these patients had been operated upon by the open method, and a section (one inch) of the veins removed. The tied ends were then sutured together with catgut, which insured the shortening of the scrotum. Catgut was also used for ligation of the veins. The most satisfactory way to reach the veins was to transfix the tissues with knife or scissors, each side being lifted with a forceps as the gynecologist approached the peritonæum. It could be done rapidly and without danger of wounding the vein. With proper antiseptic precautions and properly sterilized catgut the patient would make a more rapid recovery than with the subcutaneous method. He never used drainage, but closed the serous membranes with catgut and the skin with silk.

Amputation of the Forearm for Epithelioma of the Wrist, which almost encircled the Arm.—For two years this patient had submitted to the application of caustics from a cancer curer until the pain became unbearable. The wound healed by first intention, not a drop of pus having been seen. But the pain in the arm never ceased. A multiple neurosis followed the local one after the patient left the hospital, and the patient died eight weeks after the amputation. Alcoholism could not be ascribed as a cause. Was it the continued use of the caustic applications, which several times caused sloughs, so the patient informed me, that caused exposure of the bones and the tissues between the bones?

Four Cases of Amputation of the Thigh; one for Sarcoma springing from the Periosteum of the Thigh Bone about the Junction of the Upper with the Middle Third.—The tumor measured twenty-eight inches in circumference, and approached the joint so far that an amputation of the hip was thought proper. Wyeth's pins were inserted and the rubber band was applied. The flaps were cut for hip amputation, but when the bone was reached it was found in such good condition that the head was not removed. The patient made an excellent recovery and gained much flesh. She was seventy years old and much broken in health when admitted to the hospital.

The second case of amputation was for a chronic syphilitic endostitis and necrosis of the lower end of the femur, with an old synovitis of the knee joint, in a man forty-five years of age and in an almost exhausted condition. The amputation was done at the junction of the upper and middle third of the thigh. The marrow was soft, almost fluid, and entirely disorganized, and it was not deemed proper to leave it. As the bone seemed healthy, he curetted up as far as the trochanter major, and packed with iodoform gauze. The patient suffered very much from shock during and after the operation, but from that time on he improved daily without a single untoward symptom until entire recovery followed.

The third case was that of a man aged thirty-three years, admitted to the hospital suffering from acute gangrene of the left leg. His history was that three weeks previous he had a second attack of an apparent erysipiditis under the care of Dr. W. L. Coplin. The pain, however, soon subsided in the right iliac region, but severe pain was felt down the left leg. The pain was excruciating, and could scarcely be controlled by large doses of anodynes. Soon after the pain began it was noticed that discoloration of a linear character occurred. It followed the course of the superficial nerves and apparently involved only the skin. Soon gangrene of the entire limb occurred, with great depression of the nervous system. A line of demarcation formed above the knee, and amputation was advised. The limb was removed at about the middle third of the thigh. The operation was followed by great shock. Very little blood was lost. He rallied for a few days, when gangrene commenced in

the right limb. At the same time it was noticed that there was no perceptible pulsation in the left radial artery. He sank slowly and died at the end of ten days from an extensive gangrene of the right leg. His previous history was not good. He suffered from chronic alcoholism. He did not suffer from disease of the valves of the heart, but from a fatty heart. An embolus was the apparent cause of the gangrene.

The fourth case was that of a boy aged twelve years, who previous to this illness never was sick. On April 1st he began having pain in the left knee, and was treated for rheumatism. Soon the swelling involved the knee joint as well as the whole leg below. His case was then supposed to be one of acute cellulitis, although there was no history of injury or any previous abrasions. He was admitted to the hospital, and several openings were made in the leg and large quantities of pus evacuated. His temperature fell for a few days, but soon arose to 103°, and he was slightly delirious. Then it was found that the joint itself was involved. It was opened and a large quantity of purulent sanguinolent fluid escaped. Still the temperature continued above normal, and the boy was still delirious. Other pockets of pus were looked for and opened. Bedsores were threatened, and his condition grew worse. At the third operation it was discovered that the boy was suffering from epiphysitis of the tibia. Necrosis at the epiphysis had occurred. As the knee joint was disorganized and the leg from the ankle to the knee was one mass of suppuration, an amputation was advised and accepted. He bore the amputation well, and almost from that day his delirium ceased. The wound healed promptly without suppuration. Very little was said of epiphysitis in the text-books. The author thought this disease occurred more frequently than we were aware of, though suppuration and necrosis were very rare. He had the history of three other cases, though the symptoms were of a much milder type than in the case just mentioned.

Floating Cartilage of the Knee Joint.—The cartilage was exhibited. Its dimensions were an inch and a half by three quarters of an inch. The man, aged forty-five years, suffered for many years with what he supposed to be rheumatism in his left knee. It had never impeded his locomotion very much. For a long time it must have been too large to impinge itself between the tibia and femur. Its position was on the left lateral aspect of the knee joint. The author cut freely down on it and removed it without difficulty, as it was not attached to any of the fimbriae of the synovial membrane. Considerable synovial fluid escaped. The synovial membrane was closed with catgut sutures and the skin as usual. No drainage was used. He made a good recovery without ankylosis.

Neurectomy of the Infra-orbital Nerve in a Lady of Seventy-three Years who had Suffered Many Years from Neuralgia.—Three years previously the author had removed the inferior dental nerve for her, with relief for two years. He removed the entire nerve by a trephine opening at the angle of the jaw to the mental foramen. After two years the pain returned in the infra-orbital nerve. This was removed by making a V-shaped notch in the lower border of the orbital bone down to the foramen. By that means he was sure to secure the nerve with all its filaments. Then, lifting up the eyeball with a retractor and breaking through the thin floor of the orbit, he was enabled to break off the nerve as far back as its origin. Very little deformity followed the removal of the wedge-shaped bone. It was now five months since the operation, and there had not been any return of pain.

Amputation of the Tongue.—The patient was a man, aged seventy-three years. He suffered for many years with papilloma of the tongue, shown in small white plaques. These were partly removed by transfixing with fine needles and tied off.

When admitted to the hospital about one third of the tongue was infiltrated. It was of twice its normal thickness, very hard and painful. The glands at the angle of the jaw were also involved. The tongue was transfixed near its tip, and a strong ligature drawn through to give control of it. The patient was placed in a Trendelenburg chair and the head so depressed that no blood could enter the trachea. After etherizing, chloroform was used during the operation. Those who had not used the Trendelenburg chair for operations about the face, nose, and fauces could scarce appreciate its usefulness in preventing suffocation from blood entering the trachea. It prevented the many interruptions to the operator on account of that accident. It did away with the necessity for tracheotomy. With the tongue elevated and pulled strongly forward it controlled hemorrhage, as suggested by Heath. Then, with a pair of scissors or a knife, the mucous membrane was divided in a smooth, even, curvilinear line at the junction of the tongue with the floor of the mouth. The object of this line was for the subsequent attachment of the upper portion of the tongue to it. After the tongue was freed as far back as necessary ablation was commenced. With a pair of scissors the tongue was divided by a series of snips until one of the lingual arteries was reached, when it was quickly caught and tied. The pulling forward of the tongue so controlled hemorrhage that but a few drops of blood escaped. Before the next artery was reached another ligature was drawn through the stump, that it too might be under control when the tongue was divided. The stump was then brought forward and sutured to the mucous membrane of the floor of the mouth. By this method there was very little surface exposed for absorption of septic material, and the prevention of septic pneumonia was greatly enhanced. This patient was fed with a tube attached to the nozzle of the feeding cup, and by that means the food was placed far back in the fauces and did not come in contact with the wound. The enlarged glands were removed, exposing the large vessels of the neck. The patient made a rapid recovery. The stump and floor of the mouth united rapidly, and in six days all the sutures were removed. He suffered much from shock after the operation, but soon rallied. About half of his tongue was removed.

Resection of Knee Joint.—A woman aged twenty years had suffered for ten years from traumatic synovitis. Her general health was good. There was no history of tuberculosis. When the joint was opened an inflammatory erosion of the entire joint surface was found. The ends of both tibia and femur were sawed off. Temporary fixation of the bone was made with catgut sutures and a plaster splint applied. Recovery satisfactory. She left the hospital in eight weeks with good union. She was directed to continue to wear a light splint for a few weeks longer.

Four Amputations of the Mammary Gland for Scirrhus.—In each case the axilla was opened and all its contents were removed. Fat was removed, regardless of the fact that in two cases no enlarged glands could be felt. Yet in both cases, when the axilla was opened, minute glands could be distinguished in the fatty material removed. He operated in all cases of carcinoma of the mammae where the disease had not so far advanced that its removal was impossible. This rule applied to chronic or fibroid scirrhus as well as to the acute variety. He felt it was more beneficent to the patient to let her die of internal cancer than to die of exhaustion due to local ulceration, with all its physical and mental distress. However much confidence the patient might have in her family doctor, who advised her not to have it touched with the surgeon's knife, sooner or later she would disobey his instructions and consult a surgeon, or else fall into the hands of the cancer doctor, with his escharotics. Which caused the greatest physical suffering?

Five Cases of Harelip.—One of these cases was simple. Three of the cases were complicated with cleft palate, both hard and soft, and one case with a double cleft, with the intermaxillary bone projecting. In this case the author removed the intermaxillary bone, believing with Rose that it interfered with the proper approximation of the lateral maxillary bones. The teeth that formed in it were never perfect and were ever useless. He did not use harelip pins in approximating the parts, but used silkworm gut, both at the vermilion border and at the cutaneous surface. He used either catgut or silk sutures for the intervening parts and the mucous membrane. The advantage of the silkworm gut over pins was that it could be left in longer without cutting or sloughing and supported the parts equally well. He never operated on a child under one month of age. There was no necessity for it, and union was much less certain.

Four Cases of Suprapubic Cystotomy.—There was one case of chronic cystitis of ten years' duration, with a small phosphatic calculus, also one of a foreign body in the bladder, part of a soft catheter, and there were two cases of stone in the bladder. The specimens were shown. The largest stone was from a male patient aged sixty-one years. He suffered for six years with all the symptoms of stone, but his sedentary habits made it endurable until a few months before he was admitted to the hospital. The stone weighed five ounces and was $7\frac{3}{4}$ inches in its greatest circumference. It was smooth, and to that fact was probably due his long tolerance of it. It was probably a uric-acid calculus with a phosphatic crust. The author had formerly been prejudiced in favor of lateral lithotomy, as he had always operated by that method. Now he was convinced that in adults the proper treatment was either suprapubic cystotomy or lithotripsy, the choice of treatment depending upon the size of the stone or the condition of the bladder and kidneys. He had never crushed a stone in a young child, yet he thought it the proper treatment.

Dr. ALLIS asked Dr. Hearn if he had seen any sloughing in the cases of hydrocele where he had used carbolic acid.

Dr. WILLIAM J. TAYLOR had had the pleasure of seeing Dr. Hearn operate in the case of intestinal obstruction referred to. He never had seen such distention of the intestine. The small intestines were larger than the average colon, and the tissues were so soft that the sutures tore out. It was simply a miracle that the woman survived.

Dr. W. W. KEEN said it was impossible to refer in detail to the five series of cases which Dr. Hearn had reported from a service of eight or ten weeks, but there were two points to which he would like to call attention. One was the use of the Trendelenburg posture in all cases of operation about the mouth and nose. A preliminary tracheotomy had often been advised and had been done in these cases. Of course, tracheotomy was not one of the most serious operations, but it did add to the complications. As Dr. Hearn had said, the speaker believed that the use of this posture would practically do away with preliminary tracheotomy in most cases, and always if the tracheotomy was for the purpose of preventing blood entering the larynx and lungs.

He had noticed also with much pleasure that Dr. Hearn had drawn attention to the importance of uniting the mucous membrane after removal of the tongue. He thought that this was of great importance, in order to avoid as far as possible any opportunity for septic infection. In removal of the lower jaw in a number of cases he had endeavored to unite the mucous membrane so as to cover in the raw surface entirely. If we did that there was no opportunity for infection of the system.

These two points in the surgery of the mouth were of great importance, and it was only in late years that he had recognized

their importance; but experience had taught him the immense benefit to be derived from these procedures.

Dr. HEARN would state that he had never seen sloughing from the use of pure carbolic acid. In one case, where the surgeon introduced a dilute solution, sloughing followed, and a few days later the testicle could be seen. Where he had used pure carbolic acid he had never seen any accident. He had always injected it until he had begun this procedure of opening the sac. He had never seen the latter operation fail. The opening permitted thorough drainage and was sure to succeed.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Fifteenth Annual Congress, held in New York on Monday, Tuesday, and Wednesday, May 22, 23, and 24, 1893.

The President, Dr. MORRIS J. ASCH, of New York, in the Chair.

(Continued from page 639.)

Recurrence of a Laryngeal Growth at a New Site.—Dr. R. P. LINCOLN, of New York, read a paper with this title. (To be published.)

Dr. J. SOLIS-COHEN, of Philadelphia: This is a very interesting case. I should like to take this opportunity to place on record the final result of a case which I reported a good many years ago. It was a patient upon whom, in 1867, I performed laryngotomy and removed an epithelioma. The patient died from hemiplegia during the past year, having had no recurrence. While I have seen very few recurrences of papillomatous growths, a few very remarkable instances of it have come under my observation. For instance, I have at present under my care a school teacher who had several small, white sessile papillomas upon one vocal band, and while I have been, so to speak, in the act of removing them, I have absolutely seen other papillomata appear from the opposite ventricle and upon the corresponding vocal band. Some few years ago I published in the *International Clinics* a lecture before my class on the occasion of removing from a patient a cannula which had been worn several years for recurrent papillomata. I had opened the larynx two or three times and the trachea once to remove recurrent growths, but without permanent relief; and the patient had been compelled to wear the cannula for ten or eleven years before I was able to remove it definitively. I believe that, in the majority of cases, recurrence is due to incomplete removal of the original growth. The patients often live far distant from the operator, and leave before he is through with them. Small portions of these growths, too, are easily left behind. I believe that the skillful laryngologist is just as competent to remove these growths by the intralaryngeal route as the skillful surgeon is to remove them by external methods. Small particles of the growth may be left behind with either method. That is why in the older days we were in the habit of using the acid nitrate of mercury upon tissues whence we had removed papillomas. Now we use lactic acid. I think, if we can supervise the patient long enough after operation, we are fairly safe from late recurrences. There is no reason, however, why a new growth should not spring up from another portion of the larynx than that which has been the site of the earlier growths. I have long been of the opinion that the majority of these cases are due to excessive granulations, following erosions and lacerations, which eventually become organized. These erosions of the larynx are apt to recur, and then the same condition of affairs will be repeated—exuberant granulations and the production of papillomata.

I will mention here a case which I hope to show you before the session closes. One of our members removed a papilloma

of the larynx eighteen years ago. The patient remained free from recurrence until a few years ago, when a malignant growth appeared at the site of the previous papilloma. The patient had a catarrhal laryngitis, with exfoliation of the epithelium and erosions of the mucous membrane, and it would be interesting to know whether the malignant growth took its origin at the cicatrix—if there was a cicatrix—or upon the site of the former papilloma, which raises the question whether the cicatricial or scar tissue present was rendered more vulnerable by the catarrhal condition and gave way first.

Dr. F. I. KNIGHT: I have long recognized a form of papilloma which, when we begin to operate on it, we feel will be permanently removed, and then again another variety which is prone to recur. The first kind are the small, isolated growths, the rest of the larynx being perfectly healthy; the other variety consists of the multiple growths, and with these we feel pretty sure that a recurrence will take place. Such recurrences may happen repeatedly until, after a long lapse of time, the growths cease, as in the case reported by Dr. Hooper. It seems strange to me that we do not get recurrences oftener, because, in operating with the forceps or loop or by other methods, the operation necessarily is not a perfectly clean one. In the majority of cases more or less of the growth is left behind. It has often been a matter of congratulation with me that recurrences do not oftener occur. In the isolated cases I have generally succeeded in getting along with one operation, but in the multiple form there has almost always been a recurrence. Dr. Lincoln's case appears to have become altered in character, changing from the isolated to the multiple form. Perhaps the change in the mucous membrane, as time has gone on, induced this tendency to the recurrence of multiple growths.

With regard to operating on papilloma in children, it seems to me that thyrotomy should not be performed. Tracheotomy may be necessary, and the tumor left for a time, or it can be operated on laryngoscopically in a great many cases under ether.

Dr. DELAVAN: I have often been struck by the fact that in some cases of apparent papilloma the diagnosis is extremely difficult. In one such case which came under my observation some years ago, and was also seen by Dr. Beverley Robinson, the appearance of the growth and the intralaryngeal symptoms all pointed to papilloma. Thyrotomy was performed, and, although the interior of the larynx was fully exposed to view, we still thought the case to be one of papilloma. The growth proved to be an epithelioma. The appearance of these tumors is often deceptive, and their recurrence may indicate more than a simple papillomatous growth. Under the microscope the deeper structures may show a different condition of affairs. The tendency to repeated recurrence should always suggest the possibility of a more serious disease than simple papilloma. I remember one patient, an Irishman, about twenty-four years old, in whom the papillomata seemed to recur more rapidly than they could be removed. As soon as one was taken away several others would appear. Dyspnoea was so urgent that a tracheotomy was indicated; the man, however, would not submit to it and died very shortly after.

In those cases of persistently recurring papillomata where the recurrence takes place at short intervals, we must bear in mind the possibility of more serious disease.

Dr. MACKENZIE: I have very little to add to this already voluminous discussion except to say that, in pursuing the question of the causation of this class of growth, we are still groping very much in the dark. The ordinary causes which are given—for example, that by Morell Mackenzie, years ago, viz., hyperæmia—are hardly sufficient to account for their presence, as we see them in cases in which there is absolutely no hyperæmia.

I think hyperæmia has nothing to do with their causation in a large proportion of cases. Another thing which militates against the hyperæmic theory is that we see papillomata in the presence of anæmia, which is just the opposite condition to hyperæmia. Especially is this the case in tuberculosis. Their presence here, however, may be diathetic, and not due to local causes.

I would call attention to the great frequency of papillomatous growths in the upper air passages of the negro race. There seems also to be a greater tendency to recurrence among negroes. They often spring up like mushrooms after removal. One of my patients has been wearing a tracheotomy tube on account of them for seven years. I think that in many cases of papilloma we meet with among singers whose vocal culture has been poor there is something wrong in the apparatus of voice production. We know comparatively very little about vocalization and the complex mechanism of the separate fibers of the vocal cords, and I have no doubt that some of these papillomata of the cord originate as a result of faulty vocal mechanism.

I think Dr. Delavan has called our attention to an extremely important point, and it is my opinion that we should never remove a growth from the larynx or anywhere else, no matter how sure we are of its character, without submitting it to the microscope. I think that such a course is demanded by the scientific accuracy in diagnosis prevailing at the present day, and we should submit all cases, especially if they are at all doubtful, to a microscopic test.

Dr. F. I. KNIGHT: I should like an expression of opinion from the members present in regard to the development of epithelioma in cases which were supposed at first to be simple papilloma. It would be a very easy matter for every gentleman present to give us his experience in this matter. I have seen but one case where I thought I had to deal with a simple papilloma in which malignant disease was proved to exist afterward.

Dr. J. SOLIS-COHEN: The case I referred to in my previous remarks—the patient who died twenty-five years after operation—is one in point. In that case a microscopical examination was made. In other cases that have come under my observation I suppose I may have been deceived, because in my early days we did not submit specimens of all these growths to the microscopist. In the cases mentioned, however, the tumor grew very rapidly. It was examined by Professor Da Costa and by the late Dr. Woodward, of the United States army, who was probably the best microscopist of his day. Both of these gentlemen pronounced it epithelioma. I then determined to open the larynx and remove the growth, which I did, together with the vocal band and the whole of the ventricle, cutting into the sound tissues. As no other cases of epithelioma of the larynx had been reported in which the patient lived for five years after operation, I was for a time inclined to believe that a mistake in diagnosis had been made in my case. Since then, however, we have learned that such patients have survived for longer periods than five years, and I now believe that this case might have been one of epithelioma. I have seen other cases which at first had all the macroscopical appearances of papilloma, but which, after being picked at and pulled at, have proved to be really malignant growths, thereby accounting for the apparent recurrence.

The President: I would suggest that the question raised by Dr. Knight would be more properly discussed in connection with Dr. Simpson's paper, and if it be satisfactory to the fellows we will defer it until that time.

Intubation in the Adult.—Dr. G. M. LEFFERTS read a paper on this subject (To be published.)

Dr. W. K. SIMPSON: I have had considerable experience with adult intubation. The subject has been so thoroughly covered by Dr. Lefferts that there is little to add. The instruments employed in intubation, both for children and adults, are the result of years of experimentation before they were brought to public notice. Every attempt that will be made to modify the intubation tubes has already been gone over. A slight modification has been made in the lower aspect of the smaller tubes, it having been broadened somewhat.

The technique of the operation in adults differs somewhat from the technique of the operation in children. We have a different type of cases to deal with. We must remember that in the adult the epiglottis is much further away from the finger and is more difficult to hold in position. In cases where a tracheal cannula is worn, when we attempt to introduce the finger, we receive no aid from the elevation of the larynx. The instrument in the adult is best introduced by the use of the mirror. In children it is introduced through the sense of touch. In the adult the parts can be sprayed with cocaine, and then, with the mirror in the left hand and the instrument in the right hand, the latter is introduced and you can see it enter the larynx. This is a much better plan than to try to introduce it blindly, as we do in children. Its removal also is much better accomplished by the aid of the mirror.

I was not familiar with the fact that the statement had been made that intubation in the adult could be employed as a means of curing abductor paralysis of the cords in the fullest meaning. I have seen it suggested, however, that such a condition might be improved by this procedure, as the tube would produce a certain amount of pressure and would tire out the tendency to muscular spasm. I have employed the intubation tube in a case of fracture of the larynx with very good results.

Dr. ROZ: I have listened to Dr. Lefferts's paper with much interest. I have had some little experience with adult intubation, and have published one case of syphilitic gummata of the larynx in which it was employed where the dyspnea was so pronounced, and had been for two days, that the patient was well-nigh exhausted. This case I saw two years ago last February, reported it to the Central New York Medical Association the following June, and published it in the *Buffalo Medical and Surgical Journal* for July, 1891. As some of you may not have seen the report, and as it was an exceedingly interesting case, I will briefly relate it: The patient, a woman, had been treated by an irregular practitioner for some time for "catarrh." Her gradually increasing dyspnea, however, soon became so great that a regular practitioner was called and I was sent for to see her in consultation. Finding the patient in an almost breathless condition, I introduced by the aid of the mirror a laryngeal tube, which gave instant relief. The extreme stenosis in this case was caused by a gumma located under the left vocal cord, and pressing it upward and over against the opposite cord. The woman was at once placed on active antisyphilitic treatment, and on the fourth day the gumma had so much subsided that she coughed out the tube, and, as the breathing was quite free, it required no reintroduction.

I have also practiced intubation in one case of tubercular laryngitis associated with pulmonary tuberculosis. The patient was a young lady twenty-two years old. The infiltration and chronic inflammation of the larynx had caused an ankylosis of the arytenoid articulations. The cords were immovable and so closely adducted as to cause urgent dyspnea. I saw no way of relieving the dyspnea except by intubation or tracheotomy. The former operation was decided on, and at once gave relief. After a time the tube caused so much irritation that I had to remove it, but it had so dilated the larynx that for two or three days breathing was quite free. When the dyspnea re-

turned, the tube was reintroduced, but could only be retained for a short time, owing to the irritation and cough excited. I was then obliged to do tracheotomy, but the patient died soon after from pulmonary tuberculosis. This is the only case in which I have performed intubation when there was a tuberculous condition of the larynx. It is not well adapted for these cases, owing to the irritable and sensitive condition of the larynx, although it may be of special service in relieving impending suffocation and permitting the employment of thorough curettement and the application of lactic acid to the infiltrated tubercular tissue, or when the means for performing tracheotomy are not at hand.

Dr. DELAVAN: I was very glad to hear Dr. Lefferts emphasize the importance of special skill in the performance of intubation. I believe that a man who has intubated but two or three times will not by any means get the good results that Dr. O'Dwyer and other experts in this line have obtained. The insertion of these tubes takes long practice, and the preference should be given to the man who has had the most experience and who has the best educated touch.

Dr. LEFFERTS: Dr. Delavan's remarks are timely and to the point. I have alluded in my paper to the importance of the trained hand in performing intubation.

In reply to Dr. Simpson's remarks regarding adult intubation, I would state that I spoke of the technique of the operation in my paper read three years ago, fully covering every one of the points mentioned.

Regarding the use of the word "cure," which has been criticised in connection with the treatment of bilateral abductor paralysis by means of intubation, I would say that I have heard and seen that word repeatedly used, and I saw fit in my paper to criticise it adversely. It has been said that a cure of such paralysis can be made by means of intubation tubes. I do not believe that this is possible.

Remarks on Congenital Defects of the Face, with Exhibition of a Rare Form of Cleft Palate.—Dr. HARRISON ALLEN read a paper with this title. (To be published.)

Dr. WRIGHT: I have been very much interested in Dr. Allen's remarks. It seems to me that the late explanation that has been made, particularly by some French and German writers, regarding these deviations of the septum is very plausible indeed. We see so many of these cases that give no history of any severe injury that it has weakened our faith in the belief that they, as a rule, are due to traumatism. On the other hand, there are cases which are clearly due to a blow on the nose, with no history of previous stenosis. As regards the bony septum, to which probably Dr. Allen refers, it is almost incredible that any injury could be severe enough to cause deviation of it, because it is so well protected by the soft parts. The highly arched palate that we see in these cases, and see so often in the Caucasian race and so seldom in the negro and Indian races, leads us to a solution of this problem. It is probably due to evolutionary changes in the development of the bones of the face, and this has been dwelt on by some French observers, who show that the approach of the floor of the nose or the bony roof of the dental arch to the base of the skull has been greatly increased, and, in order to allow the septum room for its superfluous tissue, it must undergo curvature.

Dr. DELAVAN: Experiments made on rabbits have tended to confirm the theory that these deflections of the nose often were not so much due to traumatism as to defective nutrition. One of the chief of these well-known experiments consisted in stopping up one nostril in the rabbit until the animal attained its maturity; there was then found to be a distinct difference between the two sides of the face.

I have for years taught that retro-nasal obstruction or nasal

obstruction which would deprive the nose of its normal amount of air would produce this same result. I think that very often in these cases, where one nasal cavity is very much more spacious than the other, the nutrition of the defective side has been interfered with. Traumatism, in my opinion, while an important factor in the etiology of nasal deformities, is not the sole, nor in fact the chief, cause of many of these nasal and septal asymmetries, and I think that we can not recognize the fact too thoroughly.

Dr. Allen's paper has been a most interesting one. There is probably no one else who could have instructed us to the same extent and in quite the same way.

Dr. MACKENZIE: This matter can be simplified by dividing the causes of such deviations into congenital and acquired. Most of them are of congenital origin, but of those which are acquired, the majority are due to traumatism. I fully agree with Dr. Allen in what he said as regards the asymmetrical condition of the nasal cavities.

Dr. PORCHER: One word about the causes of deflections of the nasal septum. A great many explanations have been given to account for their presence, and it appears to me that traumatism is one of the least frequent of all the causes. Most of these deflections, I think, are due to inflammation of the subchondritic type or otherwise, and the curvature occurs as a necessary result in order to make room for the tissues resulting from swelling and inflammation. As it is impossible for the septum to extend itself in an upward or downward direction, it must necessarily become deflected either to the right or left.

Dr. ALLEN: As regards the point made by Dr. Porcher, that we may have deviations of the septum from inflammatory processes, I agree with him. A congenital condition of this kind may be made very much worse by acquired conditions. All these elements may be present in the same case. One does not exclude the other.

That we may have elevation of the hard palate with obstruction of the nasal respiration is undoubted, and one can well be surprised at the rapidity with which these deviations occur. Sometimes the change occurs very rapidly after an attack of acute influenza or "cold" in persons whose nutrition is poor. I have seen children with acute amygdalitis followed by acute coryza or rhinitis develop a depression of the sternum and an elevation of the ribs in the upper part of the chest within a fortnight.

In the remarks I made I did not cover the whole ground of deviations of the nasal septum, but limited myself to a few statements. It goes to show how very complex the subject really is. There is much work still to be done on the subject before we understand all the causes which lead to impeded nasal respiration and the etiology of deformities of the face.

On Some of the Manifestations of Syphilis of the Upper Air Passages.—Dr. J. H. BRYAN read a paper on this subject. (To be published.)

Dr. MULHALL: I must say in friendly criticism that the supuration of the tonsil in the second case narrated by Dr. Bryan might have been coincident with the syphilis, but independent of it. Suppurative amygdalitis, as caused by syphilis, is something new to me. The author has not furnished sufficient proof to establish the fact that the suppurative amygdalitis was caused by the syphilis.

I also desire to say a word about the notched teeth which were absent in the case of hereditary syphilis. I was associated with Mr. Hutchinson for three years as his assistant, and saw many cases of hereditary syphilis. The disease appears to make much greater ravages in the European subject than in the American. Strumous disease and rickets are also much more common over there, due to the defective nutrition of the

children. The nutrition of the poorer class of children is much better in this country than it is abroad. I have seen a number of cases of hereditary syphilis here in which the notched teeth were absent. Such teeth are partly the result of the syphilis and partly of the defective nutrition. I do not know how otherwise to explain the relatively much larger proportion of notched teeth in hereditary syphilis as observed abroad than here.

Dr. WRIGHT: I think that very frequently we are too easily deceived by the patient's statements regarding the specific nature of certain lesions. I know that in one case my credulity has lately received a severe shock—a case of nerve deafness in a young woman. Every possible means was adopted to get a history of syphilis, without result. The patient was one of the most prepossessing and modest appearing of women. Her mother gave an indirect history of syphilis, and the patient improved under the use of potassium iodide. She afterward came under the care of a gentleman of very insinuating ways, and finally admitted to him, in a fit of tears, that she had suffered from some of the symptoms of acquired syphilis after having laid herself open to infection.

I think Dr. Knight will recollect another case in which the microscopical examination and the clinical history all pointed to a sarcoma of the turbinated, and when we were just prepared to remove the maxilla a specific lesion appeared on the shin bone. Late hereditary syphilis is uncertain ground.

Dr. O. H. KNIGHT: In the case referred to by Dr. Wright the diagnosis of sarcoma of the inferior turbinated body was confirmed by the microscope, an examination having been made by several experts independently. The lesion on the crest of the tibia was a periosteal gumma. The intranasal tumor disappeared coincidentally with the latter under the influence of large doses of iodide of potassium.

Dr. MACKENZIE: Dr. Bryan, in his paper, has referred to some work which I did thirteen years ago on the subject of congenital syphilis of the larynx. I have nothing to add except to say that I then stood alone in the position which I took in the paper; since then, I think, the truth of my propositions has been quite generally conceded. Still, every now and then I meet with adverse criticism of my researches. I wish to say here that it is not in the throat clinics that we find cases of congenital throat syphilis, but in the poor houses and children's hospitals. My observations were carried on in the great children's hospitals of London, where almost every third case was one of congenital syphilis. In that way I collected one hundred and fifty cases, an analysis of which formed the basis of my paper. I wish to make this statement so that if one meets with adverse criticism of my paper he will understand how my material was obtained and where it was obtained. During my term of service at the London Throat Hospital I do not think I saw over eight or ten cases, but when I went to the Children's Hospital I saw a great many cases daily. I will also state that in my clinic at the Johns Hopkins Hospital I have recently met with quite a number of tertiary lesions of the larynx in hereditary syphilis. Morell Mackenzie once called my attention to the fact of the absence of the characteristic notched teeth in cases in which the throat was involved. I can not say whether that is so or not; I analyzed seven cases after the matter was brought to my attention, and in four of them the notched teeth were absent.

Dr. BRYAN: While the criticism made by Dr. Mulhall is very just and may be true, still the patient had been suffering with throat symptoms for several months before he came under my care; they came on in June and I saw him in October. The lesion did not present any of the other symptoms of suppurative amygdalitis. I would like to ask Dr. Mackenzie whether he

still adheres to his former belief that the laryngeal symptoms in these cases are as common as he supposed them to be.

Dr. MACKENZIE: I do.

Reports on the Progress of Medicine.

OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, M. D.

The Medico-electric Eye-bath in the Treatment of Scleritis and Episcleleritis.—Norsa (*Arch. of Ophthalm.*, xlii, 1) describes the method of using the eye-bath and the manner in which it works as follows: A two-litre glass vessel filled with a lukewarm one-half-per-cent. solution of lithium salicylate is placed two metres above the head of the patient. This reservoir communicates by means of a rubber tube with an ordinary eyeglass; at the bottom there is a perforation through which a metal tube is passed. The outer end of this is fastened to the rubber tube; the inner end projects about half a centimetre above the opening of the eyeglass. A small stopcock placed on the metal pipe serves to connect or to disconnect with the water reservoir. There is also an opening in the side of the vessel provided with a stopcock, in order to let off the water. An electric apparatus provided with a galvanometer is required for developing a constant current, and also a myriamperemeter to regulate the exact strength of the current. One electrode communicating with the metallic plate, properly covered and dampened with salt water, is laid upon the cervical sympathetic, while the other is connected with a small screw on the metal covering of the eyeglass. It is immaterial whether the positive or the negative pole is placed on the eye or glass. This can be regulated by the sensitiveness of the patient. The electric bath is applied to each eye for five minutes, and this treatment may be repeated every day.

The Treatment of Trachoma.—Knapp (*Arch. of Ophthalm.*, xxi, 1) sums up the results of his observations as follows: 1. Rapid, perfect, and permanent recovery by expression alone, or expression followed by a short course of mild caustic treatment, takes place in the majority of instances. 2. Imperfect recovery, with more or less shrinkage of the conjunctiva, is the common issue of old, neglected cases of inflammatory trachoma. 3. Relapses sometimes occur, and are in general promptly cured by a second expression. In a few cases a third expression is necessary. 4. The operation itself neither destroys nor injures an eye. The mechanical treatment, with or without scarification and impregnation of the lid with corrosive sublimate, does not cure all cases of trachoma, but it benefits and cures the great majority and always shortens the recovery. In rare instances it converts a simple trachoma temporarily into an inflammatory trachoma, but injures no case permanently.

The Histology of the Retina.—Fromaget (*Archives d'ophthal.*, December, 1892) finds that a large number of the nerve fibers end in the internal reticular substance, where it becomes impossible to follow them. There is no apparent continuity between the nerve-cells, and the connection between the different layers of nerve-cells is made by two plexuses—one called the cerebral or internal reticular plexus, the other called the basal or external reticular plexus.

The Modern Operations for Strabismus.—Wecker (*Arch. d'ophthal.*, January, 1893) states the following objections to the old method of operating exclusively on the deviating muscle: 1. It is often necessary to operate three and even four times for slight deviations. 2. The tenotomized muscle is thus materially weakened and the tendency to secondary squint decidedly

increased. 3. The eye tends to protrude by reason of the laceration of its capsule, the aruncle sinks, and secondary divergence occurs. The offending muscle must not be displaced backward without compensation, and this should be effected by an advancement of the sheath. The measure of the displacement backward of the muscle can only be regulated by the greater or less detachment of the capsule, and here the weakening by the displacement of the insertion of the capsule of Tenon must be very carefully considered.

Anatomical Investigations in the Angle of the Anterior Chamber and Schlemm's Canal.—Rochon-Duvigneaud (*Archives d'ophthal.*, February, 1893) gives the following résumé of his researches: The angle of the anterior chamber in man is the homologue of the cilio-scleral space in mammals and which corresponds to Fontana's space. This assimilation is based on comparative anatomy and embryology. The angle of the anterior chamber in the human fetus is filled by a fine connective-tissue network, exactly equivalent to the cilio-scleral trabeculae (ligamentum pectinatum) of mammals, and destined in the adult to be entirely absorbed. The cilio-scleral space contains two different systems of trabecular network—the sclero-corneal system and the cilio-scleral system. The sclero-corneal system alone is connected with Schlemm's canal. It belongs to the sclerotic and represents in a way a dissociated region of this membrane. Schlemm's canal communicates with and is a part of the venous system. In its structure it resembles the sinuses of the dura mater and might be called the scleral sinus. On the side of the anterior chamber it is covered by a system of trabeculae which may be intended to protect the absorbent surface of the canal from deposits of elements which otherwise might pass into the anterior chamber. The internal wall proper, however, is formed by a continuous membrane. The author does not believe in the existence of open communications between the anterior chamber and the canal of Schlemm, and therefore decides against the opinion that it corresponds to one of the lacunae of the sclero-corneal reticulum.

The Radical Operative Cure of Recent Traumatic and Myopic Detachment of the Retina.—Boucheron (*Archives d'ophthal.*, February, 1893) holds that every operation which evacuates the aqueous humor and keeps it evacuated, and which consequently produces a more or less persistent hypotonus in the anterior chamber, determines a dialytic current coming from the exudation accumulated outside the retina and the epithelial membrane of the flat zone of the detached processes, and coming also partially from the vitreous humor. The dialyzing membrane is formed by this fine epithelial membrane, consisting of a layer of cells and the hyaloid membrane. The greater the hypotonus in the exudation, the more powerful and rapid is the dialysis. When the eyeball is in a state of hypotonus the dialysis is slower and less complete. Hence operations for the relief of detached retina should be done during the brief period of hypertonus—that is, in the beginning or first stage. The object of such an operation should be to maintain a condition of hypotonus sufficiently prolonged either on the side of the anterior chamber or on the side of the sclerotic. The operation of iridectomy fulfils these conditions. The favorable cases occur in young subjects and before the sixth day of the existence of the detachment.

The Treatment of Strabismus by shortening the Straight Muscles.—Lagleyze (*Arch. d'ophthal.*, November, 1892) makes a vertical incision in the conjunctiva three millimetres from the corneal margin, and then excises a semilunar piece of conjunctiva. The conjunctiva is then dissected free from the muscle, and the external rectus from its anterior connection with the capsule of Tenon. The muscle is then separated freely from the underlying eyeball by two strabismus hooks. A suture

armed with two needles is then passed freely beneath the belly of the muscle. The upper needle is passed through the muscle from within outward near the upper border of the muscle, and the lower needle is passed in the same way through the muscle near its lower margin, and both needles are passed through the overlying conjunctiva. The loop thus made contains the fleshy portion of the muscle at a certain distance from the sclerotic tendon. The two ends of the suture are then turned toward the inner lip of the conjunctival wound. The upper needle passes beneath the conjunctiva and is brought out near the external and superior margin of the cornea, while the lower needle follows a similar course and is brought out near the infero-external margin of the cornea. The ends are then tied together and the muscle is thus folded forward on itself and by so much shortened.

Insufficiencies of the Oblique Muscles and how to Correct them.—Savage (*Ophth. Record*, July, 1892) believes that the cause of some cases of eye strain lies in a want of equilibrium of the oblique muscles. In detecting them, he places a modification of Maddox's prism before one eye, the other being covered, and asks the patient to look at a horizontal line on a card held eighteen inches distant. The effect of the double prism, so placed that the axis is vertical, is to make the line appear to be two lines, each parallel with the other. The other eye is then uncovered, and a third line is seen between the other two, with which it should be parallel. If there is a want of harmony on the part of the oblique muscles, this test will show it at once in a want of parallelism of the middle with the other two lines, the right end of the middle line pointing toward the bottom and the left end toward the top line, or *vice versa*, depending on the nature of the individual case. He always considers the eye before which no prism is held as the one under test. If the right ends of the middle and bottom lines converge while the left ends diverge, the superior oblique of the left eye is at once shown to be in a state of underaction. The function of the oblique muscles is to keep the naturally vertical meridians of the two corneas parallel even when not vertical. If there is perfect equilibrium of the obliques, this parallelism of the meridians named is maintained without trouble; but if the superior oblique of either eye is too strong for its inferior, or *vice versa*, the parallelism of the vertical meridians is preserved only by excessive work on the part of the weaker muscles, which will eventually bring on a train of nervous symptoms which seem incurable. In the treatment either concave or convex cylinders can be used; if the concave are used, and the insufficiency is in the superior obliques, the axes must be placed in the lower nasal quadrant; if in the inferior obliques, the axes must be placed in the lower temporal quadrant. If for the exercise the convex cylinders are chosen, the axes must be placed in the lower temporal quadrant for insufficiency of the superior obliques, and in the lower nasal quadrant for insufficiency of the inferior obliques. In either case the effect is increased as the axis is made to move from the vertical to the point of maximum effect, which is 45° from the vertical.

Heterophoria; a Safe Line drawn between Operative and Non-operative Cases.—Savage (*Ophth. Record*, January and February, 1892) draws the following conclusions: On the operative side of the line must be placed all cases in which the plane red glass produces diplopia. On the non-operative side should be placed, at least for a time, all cases of heterophoria in which diplopia is not induced by the plane red glass placed before one eye. Prisms, or decentered lenses, in position of rest, should always be resorted to primarily in all cases falling on the non-operative side of the line. There are cases, however, in which the use of prisms gives only temporary relief, and the strength must be increased from time to time until

finally the red glass again tried shows that the patient must be transferred to the operative side of the line.

A New Test for the Ocular Muscles.—Bumstead (*Annals of Ophth. and Otol.*, April, 1892) has devised an instrument for this purpose which consists of a half-cylinder of glass about three quarters of an inch long, which is fastened on a hard-rubber disc that is rimmed to fit the trial frame. The disc has a slit four millimetres wide, over which the segment of the cylinder is fastened. This constitutes a prism, or rather an innumerable series of prisms, which, instead of throwing one image on the retina of the eye before which it is placed, throws so many of them that, lapping as they do, they form a continuous band of light. If a candle is placed at twenty feet, or a small aperture in a black card before the window, and this instrument is held horizontally before one eye of the patient, a band of light will be thrown vertically on the retina, and will be projected outward to such an extent as to reach almost from the floor to the ceiling. If it is held before the right eye, and the band of light is to the right of the candle, esophoria exists for that distance, and in amount equal to the degree of the prism, base out, that is found necessary to make the band of light pass vertically through the candle flame. If it is to the left of the candle, exophoria is present, the extent to be determined as before, but with prism base in. When testing for possible hyperphoria, the half-cylinder must stand vertically before the eye, when the streak of light will run horizontally across the room, through the middle of the flame if there is equilibrium of these muscles. In this case also prisms held before the eye, base up or down, will measure the vertical aberration when it exists. For the near test with this instrument he uses a black line, between two and three millimetres in thickness and nearly five centimetres long, upon a white card. This is held vertically and opposite the meridian line between the two eyes, at the ordinary reading distance, and if there is equilibrium for this distance, the line is simply extended to the upper and lower borders of the card. If the muscles are not balanced, a second line will be seen either to the left or the right of the real one. Prisms, base in or out, will also give the degree of aberration at this point.

Glioma of the Optic Nerve; Exophthalmia; Enucleation; Death.—Keyser (*Annals of Ophth. and Otol.*, October, 1892) reports an interesting case occurring in a child aged eight years. When he saw the child the right eye was very protuberant and its movements restricted. Tension was +2 and vision was nil. The ball could not be pushed back into the orbit, and a thick, hard mass could be felt behind the ball. There was not much pain. The eye was enucleated, and the optic nerve was found very much enlarged and was severed half an inch in front of the foramen. Five days later the patient vomited, and the temperature rose to 103.4° , with slight delirium, which increased. On the eighth day the right side of the face, right arm, and right leg became paralyzed, coma set in, and death occurred on the tenth day. At the autopsy there was found a general meningitis of the brain, with considerable pus. The right optic nerve was markedly swollen. On the left optic nerve, external to the chiasm, there was a globular tumor three quarters of an inch in diameter, and another small growth sprang from the base near the pons on the right side. In the white substance of the left middle lobe, anterior to the lateral ventricle, was a cyst $1\frac{1}{2} \times 1 \times 1$ inch with amber-colored fluid contents. Both tumors springing from and involving the left optic nerve, on being microscopically examined, proved to be true glioma.

Blood Effusions between the Retina and the Vitreous Body.—Hotz (*Annals of Ophth. and Otol.*, January, 1893) reports three cases of this nature, in all of which the similarity

of symptoms was striking. Sight was suddenly reduced to perception of light, which appeared colored as if seen through a brown or reddish medium. The ophthalmoscope showed a large effusion of blood in the region of the macula, and reaching close to the temporal border of the papilla. The blood was absorbed in the course of four weeks or more, and no trace of any lesion could be found in the fundus. The perfect recovery of vision is the strongest argument against the assumption of the blood effusion being into the substance of the retina, the structure of the macula not being disturbed in the least.

The Clinical History of Central Circumscribed Chorioretinitis.—Gradle (*Annals of Ophthalm. and Otol.*, January, 1893) considers that this disease is evidently localized in the chorioid, as indicated by the general uveal irritation and subsequent pigmentary changes. The interference with vision shows that the external layers of the retina are also involved. The glistening of the recent "plaques" suggests a disturbed state of the membrana limitans. The limitation of the inflammatory process to a circumscribed area of the fundus, with disturbance of nutrition in the uveal tract and the vitreous, points to an infectious origin of the disease, the infectious material probably entering by way of the short posterior ciliary arteries.

The Ripening of Immature Cataracts by Direct Trituration.—Bettmann (*Annals of Ophthalm. and Otol.*, January, 1893), in order to avoid an unnecessary rubbing of the cornea and squeezing of the iris, and to prevent an unwarrantable mutilation of the latter by iridectomy, advises an incision in the sclero-corneal margin and the insertion of a trowel-shaped spatula. The flattened end of this instrument is placed on the lens surface within the pupillary space. If the pupillary field is small, it is slid beneath the iris below and on either side, and the lens is then subjected to trituration. If the cataract is of the soft variety, the cortex may be seen to break down while being manipulated. The construction of the trowel spatula prevents contact with the iris, the shank being in a higher plane than the iris.

The Use of Thiersch's Skin Grafts as a Substitute for Conjunctiva.—Hotz (*Annals of Ophthalm. and Otol.*, April, 1893) takes his grafts from any convenient surface of the skin as follows: The skin is rendered thoroughly aseptic, and then, being drawn tense and well wet with a one-half-per-cent. solution of sodium chloride, the blade of a sharp razor is laid upon it and firmly pressed against the skin in such a manner that slight sawing motions will make the edge of the razor just cut down to the papillary layer and shave off a thin scale, consisting of epidermis and the tips of the papillæ. The transplantation of these slips upon a wound is a simple procedure and usually crowned with success. He advises their use in four classes of cases: 1. For the relief of extensive adhesion of the lower lid to the eyeball, following the destruction of the palpebral and ocular conjunctiva by lime or hot metal. 2. For the relief of excessive shrinkage of the conjunctiva in trachomatous eyes. 3. For enlarging a contracted conjunctival pocket to make the insertion of an artificial eye possible. 4. In certain cases of pterygium.

The Diplometer.—Galezowski (*Rec. d'ophthal.*, March, 1893) here describes an instrument which consists of a box like a stereoscope, which serves as a dark chamber. At the back part are placed two peep-holes. In front of each of these holes is a metallic disc armed with a double groove for the reception of correcting glasses for distant vision and of a red glass. The front part of the box, much larger than the back, is closed by a ground glass, divided horizontally and vertically by lines. Each vertical line is numbered to the right and left of the median line, while the horizontal lines are represented by letters. One metre from the peep-holes stands a vertical rod, the top

of which corresponds to the center of the ground glass, on which is placed a lamp which glides smoothly along a metric measure. The latter turns around its point of fixation and describes a circle parallel to the surface of the ground glass. The lamp is mounted in such manner as to follow all the rotary movements of the metric measure or rule, always, however, maintaining its vertical position.

The Variations induced by Advancing Age in the Radii of Curvature of the Lens.—Bertin-Sans (*Archives d'ophthal.*, April, 1893) concludes from his observations that the radii of curvature of both surfaces of the lens accommodated for the remote point increase as the animal grows older, and the same holds true of man. These conclusions agree perfectly with our knowledge of the development of the lens, which maintains the same thickness, according to Sappey, throughout its entire existence, and only grows by elongation of its diameter by the addition of new fibers.

Skiascopy.—Hess (*Kl. Mon.-f. Aug.*, May, 1893) has devised an instrument for practicing skiascopy, for which he claims the following advantages: 1. The distance at which the observer carries on his investigations remains always the same, and the size of the field of illumination remains also the same. 2. By the great distance of a hundred and twenty centimetres employed, slight deviations from the middle distance exert no effect on the result. 3. The change in the glasses is made more rapidly and surely than in any other way, and at the same time their distance from the eye is not changed.

The Spectroscopic Analysis of a Black Cataract.—Gillet de Grandmont (*Archives d'ophthal.*, May, 1893) concludes from his investigations that the color of black cataracts is due to the coloring matter of the blood transformed into precipitated hæmatin. It differs from the pigmentation of the chorioid, and is not due to melanin. The coloring occurs by progressive imbibition, the parts nearest the capsule being the most deeply colored.

The Perimetry of Colors.—Hegg (*Ann. d'oc.*, May, 1893) draws the following conclusions: 1. The perimetry of colors is not the equivalent of the determination of the peripheral sensibility of the retina for colors, because this determination only permits a single intensity of irritation. 2. Nevertheless, different colors constitute irritations of different intensity, and each color taken alone represents at the extreme limit of the points of the retina which still perceive it the minimum of irritation for these points. 3. The sensibility of the retina for colors diminishes progressively from the center toward the periphery. 4. The cause of this diminution of sensibility toward the periphery must probably be sought for in the sensory elements of the retina itself. 5. In the lesions of the optic nerve, we may formulate a conclusion as to the eccentric visual acuity, based on the manner in which the colored visual fields act, but only when the refractive media project a well-defined image on the retina. 6. The perimetry of the colors enables us to judge in all cases of the continuity of the visual field. 7. All colors may be divided into two groups: (1) Those which at the periphery pass through the blue to neutral gray; (2) those which at the periphery pass through yellow to neutral gray. 8. All colors hitherto employed for perimetric purposes vary both in tint and saturation as we go from center toward periphery. Hence they can not be utilized. 9. Invariable or unchangeable colors are those which vary in saturation but not in tint, proceeding from center toward periphery. 10. These unchangeable colors may be rendered equivalent in pairs, and to all may be given the same white value. 11. The visual field of red is equal to that of green; that of blue is equal to that of yellow. 12. Researches into the domain of the perimetry of colors can not pretend to any scientific value, unless made with unchange-

able colors of the same white value. 13. With these pigments a patient can not determine accurately its color.

Excision of Orbital or Palpebral Lacrymal Glands in Simple or Complicated Rebellious Lacrymation.—Truc (*Archives Ophthalm.*, May, 1893) draws the following conclusions from his observations: Excision of the lacrymal gland is an operation which may be employed in the treatment of simple or complex obstinate lacrymation as a means of last resort. Excision of the palpebral gland is to be preferred for the simple cases. Excision of the orbital gland may be employed in cases of granulations, where the conjunctival *cul-de-sac* is much altered, destroyed, or densely infiltrated. It is useful in certain cases of severe chronic blepharitis with hypertrophy of the mucous membrane and marked ectropium.

Temporal Hemianopsia with Recovery, followed by Right Lateral Hemianopsia, Ophthalmoplegia, and Partial Recovery.—Würdemann and Barnes (*Arch. of Ophthalm.*, xxii, 2) report in full this very interesting case. The original lesion was believed to have been miliary aneurysms at the base of the brain, due to an atheromatous condition of the vessels engendered by years of general anæmia. The first apoplectic attack was apparently due to a circumscribed hæmorrhage at the anterior portion of the optic chiasm pressing upon the decussating fibers, thereby producing temporal hemianopsia, the clot afterward being absorbed, but not before pressure on the optic nerve, resulting in partial atrophy, had occurred. The almost complete restoration of the visual fields under treatment is unusual. The erratic changes in the visual fields with the paræsthesia and mental disturbance that followed were not recognized at the time as prodromata of a second attack, the cause of which was probably debility resulting from dysentery. At this time the hæmorrhage was more posterior, involving the whole of the left optic tract, and for a short time affecting the third nerve of the same side, as is shown by the evanescent external squint and ptosis. No explanation of the peculiar changes in central vision and of the condition of the color fields is offered.

Ophthalmia Nodosa caused by a Penetrating Caterpillar Hair.—Krüger (*Arch. of Ophthalm.*, xxii, 2) reports four cases of this rather rare disease. He considers that the protracted affection with formation of nodules is very rare. The chief danger rests in the complication of iritis. The structures of the hairs, chiefly the little hooks, enable them to penetrate so far into the membranes of the eye, especially if favored by the patient rubbing the eye. The diagnosis will not be difficult if conjunctival nodules or free hairs are present, as such multiple tough nodules persisting very long without decay do not occur in general affections, nor in connection with other foreign bodies. In those cases in which the iris alone shows nodules the diagnosis is only possible after excision of the piece of iris with the nodule. The prognosis must be guarded on account of the complicating irido-cyclitis, which may lead to occlusion and seclusion of the pupil.

The Pathology and Pathogenesis of Retinitis Proliferans.—Bauholzer (*Arch. of Ophthalm.*, xxii, 2) believes that many of the large vessels reported as seen in many cases of retinitis proliferans owe their visibility to the detachment of the retina, and are not new-formed vessels. Whether the retinal proliferation is primary and the involvement of the vitreous secondary, can not be definitely decided. We find, however, parts with excessive proliferation of the supporting tissue without deposits on the side of the vitreous. Whether the detachment of the limitans interna favors the proliferation of the supporting fibers is doubtful, since the proliferation is found where the limitans interna is normal. Intra-ocular hæmorrhage stands in intimate causal relation with the proliferation. In

most of the cases published there was intra-ocular hæmorrhage, either in the vitreous or retina. The fairly good vision which is sometimes found, even late in the disease, finds its explanation in the fact that the nervous elements, particularly the rods and cones, are relatively intact.

Miscellany.

Ferratin.—This is the name given by Professor Schmiedeberg, of Strassburg, to a compound of iron which he has extracted from the liver of the hog. Ordinarily, he says, it contains six per cent. of iron. As now prepared, and to be obtained in commerce, it occurs in the form of a fine powder of a reddish-brown color, of two varieties, one of which is insoluble, and the other, combined with sodium, easily soluble in water on agitation. For the purpose of dissolving the second form of the powder the water must be as free as possible from lime, otherwise an insoluble calcium ferratin will be formed. A watery solution of the sodium compound may be added to milk or to any other liquid food, especially in the diet of little children. Either form of ferratin may be administered in the shape of powder. From a grain and a half to seven grains may be given daily to children, and from fifteen to twenty-two grains to adults. It may be given in one dose or in two or three doses. Acid articles of food should not be taken during the employment of ferratin.

Desternalization of the Ribs.—In *La Province médicale* for November 4th there is an article by Dr. Jaboulay, surgeon to the Hôtel-Dieu of Lyons, on the subject of desternalization of the ribs and its employment in the treatment of large purulent accumulations in the pleura and in that of scoliosis. When, he says, in the dead body the costal cartilages are detached from the sternum, or when they are simply cut through at about their middle from the first to the seventh, the side of the chest wall corresponding to the divided costal cartilages will be seen to become flattened, especially behind, and to become contracted transversely, the ribs tending to the median line and in from of the sternum. This change in the shape of the chest is still more evident when the corpse is placed in a sitting posture. If it is stretched out on the back, the weight of the upper limbs, through the medium of the clavicles, drags the first and second ribs away from the median line instead of allowing them to approach it as all the other ribs do. The same change takes place on both sides. If bilateral desternalization is practiced, or if the sternum is removed, the chest becomes narrowed transversely to an extent equal to the whole breadth of the sternum, or even a greater extent. It will be understood that by means of this double measure one may contract the thorax almost at will by adding transverse compression to the narrowing set up by this operative procedure. These effects may be made use of in the treatment of purulent pleurisy when it is not cured by puncture and by the ordinary operation for empyema. Unilateral or bilateral desternalization or resection of the sternum seems preferable to the resection of a great number of ribs, as the latter procedure in severe and inveterate cases is not likely to prove successful. The author insists upon this point, that when a rib is removed the transverse sinking of the chest wall affects only the level of that rib and a portion of the intercostal spaces above and below it, and diminishes at the same time the height of the side of the chest, so that, in order to completely efface one side of the chest, as is commonly necessary in cases of enormous effusion, it would be necessary to

remove all the ribs. Desternalization, on the contrary, affects all the true ribs, and makes the corresponding half of the chest entirely mobile.

A Medical Line Officer of the Russian Navy.—The *Nouvelles Montpellièr médical* for November 4th contains a paragraph concerning a Franco-Russian medical banquet lately given in Paris, at which the representative of that journal fell in with Dr. Botkin, the son of the celebrated professor, who, at the conclusion of the regular toasts, rose to drink to France. The account mentions the great stature and elegant appearance of this young man, who is undoubtedly remembered most pleasantly by many New York physicians who had the privilege of making his acquaintance when the Russian men-of-war were anchored in the North River last spring. It seems from the article given in our contemporary that, besides being a naval surgeon, Dr. Botkin is a line officer of the rank of ensign, and it is said that his reason for assuming the double character was to enable him to add military discipline to the moral influence of the physician, both of which he might have occasion for in certain explorations in Central Asia that he had in view.

Guaiaol in the Treatment of Erysipelas of the Face.—In the *Lyon médical* for November 5th, Dr. L. Bard publishes the conclusion of an article giving his experience in the treatment of erysipelas of the face by painting with guaiaol. He relates five cases, all of which ended in recovery. Undoubtedly, he says, the prognosis of erysipelas of the face is not very grave, and recovery is the most frequent termination; nevertheless the mortality in severe cases is far from trifling, and four of the cases related had, before the application of the remedy, manifested a gravity above the average. In three of them there was albumin in the urine, and all four of the patients had prolonged delirium. In two cases the symptoms were particularly alarming and included a condition closely bordering on coma. In every case the disappearance of the fever was hastened by the use of the remedy. As regards the theory of the antipyretic action of guaiaol applied to the skin, the author is inclined to accept that of its action on the nervous centers, but without committing himself as to the precise mechanism of that action. Whether the drug acts by being absorbed, or acts upon the peripheral nerves, it is probable that at the same time it exerts upon the thermic centers a moderating or anæsthetic influence and has a peripheral vasomotor action more or less closely allied to the former.

Phosphorus in the Treatment of Rickets.—Dr. Louis Guion contributes to the November number of the *Revue mensuelle des maladies de l'enfance* a description of the method by which Dr. Oscar Rie, of Vienna, employs phosphorus in the treatment of rickets in Dr. Kassowitz's service in a public institute for sick children. The simplest formula and the least costly, such as may be used in a hospital, is a solution of one part of phosphorus in ten thousand parts of cod-liver oil, of which a teaspoonful is to be taken once a day. As the pharmacists can hardly weigh so small a quantity of phosphorus, Dr. Kassowitz suggests that a concentrated mother solution of phosphorus in oil of sweet almonds, in the proportion of one to five hundred, be kept on hand. Five grammes of this solution, containing 0.01 of a centigramme of phosphorus, would form with ninety-five grammes of cod-liver oil the one-to-ten-thousand solution. If the child can not or will not take it, the following formula may be tried: One centigramme of phosphorus, one hundred grammes of cod-liver oil, five grammes of saccharin, and eleven drops of essence of lemon; a teaspoonful to be taken daily. If this form is not acceptable to the child, Kassowitz prescribes a mixture of one centigramme of phosphorus

thirty grammes of lipanin, fifteen grammes each of white sugar and gum arabic, and forty grammes of distilled water; a teaspoonful to be taken daily. Another is this: One centigramme of phosphorus and five grammes each of lipanin and olive oil; ten drops to be taken daily. The use of any of these preparations may be continued for months at a time.

There are numerous and decided partisans of this treatment, and it also has staunch adversaries. The latter maintain either that it is insufficient and needs to be re-enforced by all the ordinary hygienic rules, or that its action is solely that of the cod-liver oil. M. Guinon endeavored to test its efficacy in Professor Grancher's service in the year 1891 to 1892, and used the one-to-ten-thousand oily solution of phosphorus. The trials were made on forty-one children ranging from a few months to three years in age. Unfortunately, although the medicine was dispensed gratuitously, most of the patients could only be kept sight of for a very short time, because they did not return. Thus, twelve of the children did not reappear and four took the oil only fifteen days; so that there remained twenty-four children treated from a month to six months. This period is rather short for the observation of modification in the bones, but the parents' negligence and their final disappearance prevented a longer continuance; nevertheless, the treatment gave results constant enough to convince M. Guinon. In the first place, the oil was generally well borne. Sometimes in children whose digestion was already disordered it provoked transitory disturbances which ceased spontaneously. In five cases the author observed vomiting for a day or two. In one case there was a saburral state, which was of brief duration, and in three cases there was a little diarrhoea; but the children rapidly became accustomed to the remedy and succeeded in digesting it well. In no instance was poisoning observed. In one case, by mistake, the mother gave two dessertspoonfuls for two or three days. The child, who was twenty-two months old, merely had some abdominal pains with constipation.

If we are to form a sound judgment, the author says, of the effects of a treatment in rickets we must not, as is too often done, limit our observation to the condition of the osseous system. There, it is true, is the most prominent phenomenon, but it is only a small part of the symptomatology. Other disorders must be taken into account—namely, the dentition; the state of the digestive organs, as to constipation, diarrhoea, and vomiting; general and localized convulsions, and spasm of the glottis; cough, simple or accompanied by sibilant bronchitis; sweating of the head, a phenomenon that is common and that so often precedes deformities; the pains that are so frequently manifested when the child is taken under the arms or lifted by the arms, and when it is placed on the floor; the ordinary apathy of rachitism; the difficulty or impossibility of walking and of maintaining the erect posture; the weight and the mien, and finally the enlargement of the liver and of the spleen, which latter phenomenon the author has found to be relatively rare in his observation. Taking all these elements into account, he has been struck with the rapid improvement in the majority of cases. Generally at the end of fifteen days the mother reported that the child was more cheerful, that he coughed less, that his digestion was better, and that sometimes he slept better. At the end of from three to four weeks the mother would remark that instead of lying stretched out and flaccid, if it was a nursing, the child would sit by itself or try to do so. If it was an older child, instead of remaining seated it would stand or try to do so. Finally, at a more advanced age it would try to walk, or begin to walk if it had lost the ability to do so, as so often happens in rickets during the second year of life. At the end of two months or more it is observed that the teeth make their appearance, although retarded,

but on this point the author's conviction is less positive, for it is difficult in such a case to appreciate the effects of the treatment. In only two cases has he noted changes in the condition of the bones, the epiphyses having diminished in volume and the curves having been altered. He admits, however, that the period over which his observations extend was not sufficient to allow of appreciating an amelioration necessarily very slow. Yet it may be said that the progress made in walking and standing was a sufficient proof, and the author is quite ready to believe that it was the effect of an increase of muscular force, as was proved by the firm consistence of the flesh, the greater vivacity, and the improved color.

He thinks that salt baths, frequent general friction, the open air, and a carefully regulated diet have a very favorable and prompt effect in rickets, and should always be resorted to in conjunction with the use of the phosphorized oil. This practice, he thinks, should always be adopted when it is impracticable to prescribe a sojourn at the seaside.

The Topical Use of Salicylic Acid in the Treatment of Acute Articular Rheumatism.—In the *Revue générale de médecine, de chirurgie et d'obstétrique* for November 8th we find an abstract of an article on this subject by M. Bourget, published in the *Revue médicale de la Suisse romande*. The article concludes as follows: 1. The absorption of salicylic acid by the skin is rapid and very energetic. In young subjects the absorbent power of the skin is greater than in old persons, and the skin of blondes seems more permeable than that of individuals whose hair is black and whose skin is swarthy. 2. The rapidity and intensity of this cutaneous absorption always depends upon the vehicle employed to dissolve the salicylic acid. Fatty bodies are the only ones that allow of a higher degree of penetration through the skin, while with vaseline and glycerin it is far less active if it occurs at all. 3. The treatment of acute articular rheumatism with a salicylized terebinthinate ointment is very much to be recommended. 4. This ointment is less efficacious in other forms of rheumatism, but it may be used as an adjuvant to massage. 5. It has no effect in gonorrhœal rheumatism.

The Predisposing Causes of Retention of Bile in the Gall Bladder.—In the concluding portion of an article entitled *Some Observations on the Pathology, Ætiology, and Treatment of Gallstones*, by Dr. E. M. Brockbank, of Manchester, England, published in the November number of the *Medical Chronicle*, attention is given to the causes which predispose to the retention of bile in the gall bladder. The first one considered is the dependent position of the fundus of the gall bladder. If, says the author, a normal gall bladder and liver are examined—and this is best done on a model taken from a frozen normal liver, such as is used for teaching purposes in the anatomical lecture room—it will be found that the fundus is distinctly at a lower level than the termination of the cystic duct at its junction with the hepatic duct. As the gall bladder is directly apposed to the lower surface of the right lobe of the liver, it follows the direction taken by the anterior margin of the lobe as it curves down to the costal arch. The fundus is movable, and is always the most dependent part, while the cystic duct remains fixed at the hilum of the liver. The line drawn through the long axis of the gall bladder, passing through the cystic duct at its junction with the hepatic duct and through the fundus, will be found to be oblique, running forward and downward, and the difference of level at the two extremities, when the normal gall bladder is in a state of medium distention, will be about an inch. This difference in level can easily be seen in the post-mortem room, where it will very often be found to be much increased, especially if the gall bladder is distended.

Any causes that depress the anterior portion of the right lobe of the liver will tend to increase the obliquity of the longitudinal axis. The wearing of a tight corset is an example of such a cause, as it produces a marked groove in the right lobe and depresses it greatly at the same time. The German pathologists term this altered liver *Schnürleber*, and mention it as probably the exciting cause of gallstones. The consequence of all this is that even under normal conditions the gall bladder has to be emptied against the action of gravity, so that there is a tendency for it to be emptied only incompletely, and this would be more decided where the bile was thickened or contained a sediment. This dependent position of the fundus of the gall bladder, the author says, is much more marked in quadrupeds than in man, and the long axis is almost vertical. When the animal lies on its side the gall bladder is in a much better position to discharge its contents. Can this, the author asks, be a reason why animals, especially dogs, generally lie on the side after a heavy meal? In man the posture of leaning forward adopted at the writing table would tend to bring the gall bladder more toward the quadruped position and increase the difficulty of emptying it, and an easy-chair position would act in the opposite direction. The author then considers the relation of the hepatic flexure of the colon to the gall bladder. The flexure, he says, is in immediate apposition to the gall bladder and to the cystic duct, and feces collecting here, as they tend to do, at both flexures of the colon in chronic constipation, which occurs so often in women, would interfere with the complete discharge of bile from the gall bladder.

Uræmia as a Sequel of Measles.—Dr. S. Zichy-Woinarski reports in the October number of the *Australasian Medical Gazette* a case of measles followed by fatal uræmia. He speaks of the extreme rarity of fatal uræmia as a complication or sequel of measles, but states that two other cases have occurred during the present epidemic of measles in Ballarat. One was in a girl six years old. The renal condition was diagnosed as one of acute desquamative nephritis, and the author asks if it might not be that in this case the morbid matter expended most of its violence on the hypoblastic tissues in place of the epiblastic, the ordinary field of its intense action.

The Hypodermic Use of Aristol.—Aristol, or biniodized thymol, or biniodide of dithymol, remarks a writer in the *Progress médical* for November 4th, is a substance that was obtained by Messinger and Wartmann by the action of a solution of iodine and iodide of potassium on a solution of thymol in caustic soda. It is described as an amorphous powder of a brick-red color and tasteless, having a slight odor of iodine and of thymol. It is insoluble in water, slightly soluble in alcohol, and freely soluble in ether, in sulphide of carbon, and in the fixed oils. On exposure to air and light it loses a part of its iodine. It was employed by Erchoff and Raymond as a substitute for iodoform. Brocq recommended it in powder or in ointment in diseases of the skin. Vinay employed it in gynecology and as a remedy for excoriation of the nipples, and Huchard used it internally in pulmonary gangrene and tuberculosis, in doses of from four to six grains daily, in pills of a grain and a half each.

Hypodermic injections of aristol dissolved in oil of sweet almonds have been used by Nadaud as a remedy in pulmonary tuberculosis. He injects at first one cubic centimetre, and then from two to three cubic centimetres of a 1-to-10,000 solution of aristol in oil of sweet almonds. These injections are not painful, and if ordinary antiseptic precautions are taken they never cause abscess. Nadaud has observed that this treatment causes a general amelioration of the symptoms of tuberculosis—such as cough, sweating, and difficulty of breathing.

The Dangers of Overfeeding in Children.—The *Mercredi médical* for November 8th summarizes a recent thesis by Dr. Paul Bellot in which the author calls attention to the frequency of disturbances due to overfeeding, not only in infants at the breast, but also in those who are older and take ordinary food. He has made a study of these disturbances as they affect the digestive canal, the liver and the kidneys, the locomotor apparatus, the skin, and the nervous system. It is not sufficiently recognized, he says, that hepatic colic is apt to attack overfed children, especially those who live in cities and therefore lead a sedentary life not very favorable to the combustion of fatty food. Although less frequent than in adults, hepatic colic is not positively rare in children. Rousson found concretions in the biliary passages of the new-born, and Hein observed hepatic colic in a child twenty-five days old. Undoubtedly heredity and a sedentary life may of themselves play an important part in the ætiology of this morbid assemblage of symptoms, but it is not the less true that it is in a measure to be imputed to overfeeding. By causing congestion of the liver this sets up inflammation of the biliary passages. It follows that the mucus secreted by the glands of these canals acquires an acid reaction and decomposes the biliary acids, which then lose their solvent power and allow pigment and cholesterol to be deposited in the form of small concretions, or biliary sand, the starting point of calculi. Cases of this kind are not rare, and M. Bellot cites one that is very striking.

In common with hepatic colic, nephritic colic is not very rare in children during the second infancy, or even during the period of nursing. Sometimes the new-born present uric-acid infarctions in the canals of Bellini, in the calices, and in the pelvis of the kidneys. The origin of this renal lithiasis before birth is rather obscure, but the diet of the mother and hereditary influences may be considered to play an important part. During lactation overfeeding may be a cause of disease. In the second period of infancy authors commonly recognize the influence of excessive feeding and of a diet containing too much animal food. Similar affections, as Bouley has shown, occur in young animals. As regards the skin, the correlation existing between various skin diseases and gastro-intestinal derangements in children is indisputable, and these gastro-intestinal troubles are very often due to overfeeding, which therefore should be considered as very commonly the primary cause of these different cutaneous affections. According to Brocq, symptomatic skin diseases may be the result of accidental poisoning by drugs, articles of food, or a morbid toxin; or of an organic disease acting in a reflex way; or of progressive vitiation of the general condition; or of defective nutritive exchanges. In the case of overfed nurslings, the first and second of these ætiological factors do not generally play a part, unless the milk on which the children are maintained is of an extremely bad quality, but the same is not true of an organic lesion acting in a reflex way, or of the imperfect nutritive exchanges which undermine the vitality of an organ and make it morbidly vulnerable. In the case of infants subjected to a mixed diet or to a diet containing no milk all four of these causes may come into play.

As regards the genesis of certain skin diseases, such as urticaria, following the abuse of drink, and often observed in persons with dilated stomachs, a reflex action upon the cutaneous vaso-motor nerves must be admitted or, in a weaned child, a direct action of ptomaines taken in excess into the system with articles of food. In other cases, on the contrary, and these are the commonest, where it is a matter, for instance, of impetiginous eczema, or seborrhoeic eczema, or eethyma, or different forms of acne, strophulus, etc., the pathogeny is probably different, in that case involving the direct elimination by the sweat glands of volatile fatty acids which, in their passage through

the skin, alter the anatomical elements of the integument. Among these various skin diseases there is one—eczema seborrhoeicum of the hairy scalp and of the face—that is observed in large, fat children, who assimilate the great quantity of food which they take—that is to say, who bear overfeeding without gastro-intestinal troubles. One point it is very important to recognize—namely, that digestive derangement is not at all necessary to the production of skin diseases in an overfleshy or overfed child. In all these conditions it is a prime requisite of treatment to reduce the amount of food taken.

Ergotine Gallate as a Hæmostatic.—The *Deutsche Medizinisch-Zeitung* cites from the *Deutsche medicinische Wochenschrift* a formula employed by Dr. Blaschko, of Berlin, in hæmoptysis. The formula calls for a solution of one part each of gallic acid and ergotine in a mixture of twenty-five parts each of distilled water and syrup of althæa, of which a teaspoonful is to be taken every two hours. The author has observed admirable results from the use of this agent. Where there is much disposition to cough, the syrup of althæa is replaced by syrup of diacodium, and, if there is imminent danger of death, the patient takes the teaspoonful every hour.

The late Dr. John C. Peters.—At a meeting of the New York Academy of Medicine held on November 2d the following resolutions were adopted:

Resolved, That there be spread upon the minutes of this meeting the following as a brief expression by the Academy of its appreciation of the character and professional merit of John Charles Peters, M. D., whose death has recently been announced.

During a long life of professional activity he gave generously of money, time, and effort toward the promotion of science, the welfare of the profession and community, and the interests of the Academy. As an author and bibliophile he was eminent. He was foremost in the foundation of the New York Pathological Society and contributed greatly to its successful development.

His studies of Asiatic cholera are recognized as most important contributions to the knowledge of the profession, both here and abroad, and his generous gift of the literature of this subject forms one of the most complete departments of our library.

The incomplete list of nearly thirty titles of his works given in the *Index Catalogue* of the surgeon general's office, a larger part of which relate to elaborate treatises, illustrates his activity as a writer and the comprehensive character of his writings.

The *Medical Gazette*, the *Transactions* of the New York Pathological Society and the *Academy* are some of the evidences of his rare editorial ability.

The numerous positions of honor and trust to which he was elected in the many organizations of which he was a member, evince the confidence of his associates and his remarkable executive skill.

Few matters relating to public sanitation failed to elicit his active support, and his communications through the secular press, whether anonymous or with his name, were of great influence in directing public and legislative action.

His intelligent supervision of our library and his influence with others were the cause of much of its subsequent prosperity.

His keen sense of personal dignity and probity made his example and precept respected by all who knew him, and his genial temper, kindly humor, and modest avoidance of anything that might be regarded as obtrusive have endeared him to all his associates.

The Academy was ever honored by his fellowship, and his friends were always the gainers in their relations with him.

Original Communications.

SURGICAL SHOCK.*

By CHARLES P. NOBLE, M.D.

SURGEON IN CHIEF OF THE KENSINGTON HOSPITAL FOR WOMEN, PHILADELPHIA.

It is proposed in this communication to briefly consider the nature of surgical shock, and then to take up its treatment in detail. Shock is a condition of the body which is characterized by feebleness and rapidity of action of the heart, by the shallowness and frequency of respiration, by the lowering of the temperature of the body, and by the lessened activity of most of its functions. Intellection, digestion, and the secretion of urine, all are more or less in abeyance. It is probable, also, that the processes of assimilation and metabolism are profoundly interfered with. Perspiration is usually free, the body being covered with a cold, clammy sweat. This, however, is due not to the increased activity of the sweat glands, but rather to an arrest of the activity of their cells, so that they simply act as strainers for the watery part of the blood to pass through them.

There can be no question that vitality is at a low ebb when shock exists, but there is some difference of opinion as to the real physiology or pathology involved. It is generally accepted that shock is a manifestation of paresis of the nervous system, its symptoms being due to lessened and irregular innervation. The question as to whether the cerebro-spinal or the sympathetic system is most involved is in dispute, and we do not propose at this time to attempt the elucidation of the question. As a matter of fact, injury of the body in any of its parts can bring about shock. Injuries to certain parts of the body are especially apt to produce shock. These parts are the testicle and urethra in the male, the ovary (in a lessened degree) in the female, and the abdominal viscera. Examples of shock from injury to these structures are common and familiar to every one of experience. The familiar experiment of temporarily arresting the heart's action of the frog by a blow upon its abdomen is a striking illustration. Leaving aside the disputed points at issue, we wish to consider certain facts because of their very practical bearing upon the therapeutics of surgical shock. Among the most important symptoms of shock is the lessened force and greater frequency of the heart's beat. The activity of the respiratory center also is much lessened. The superficial blood-vessels are contracted, so that the surface of the body is pale and even blanched. The temperature of the body is lowered below the normal. These facts are indisputable, and a recognition of the existence of these conditions forms the basis for rational therapeutics. Heat must be restored to the body; the heart and respiratory centers must be stimulated to do their work; and the superficial blood-vessels must be dilated, so that the circulation may be equalized,

by affording a channel for the blood which has been retained in the great veins of the abdomen. The practice which I have followed for some years to accomplish these results will now be given.

Treatment of Shock.—The most important point in the treatment of shock is its prevention. Much can be done by prudent management either to avoid shock or to lessen its degree. In selecting the date for operation a time should be chosen when the patient is in good condition. Almost always this is possible. It is only in emergency cases, and when patients are suffering from a disease whose progress is steadily and rapidly downward, that preparatory treatment will not put them in better condition. All patients requiring operation should receive careful study, and every therapeutic indication should be met before operation. Especially should the condition of the emunctories be looked after. The bowels, skin, and kidneys should be put in good condition by the use of baths, purgatives (especially broken doses of calomel and salines), and the abundant ingestion of water. The *morale* of the patient should not be neglected, as much can be done, by stimulating the courage of the timid and allaying the fears of the despondent, to make the patient look forward to her operation with courage and without dread. All these matters should be attended to prior to the day of operation. The temperature of the room in which the operation is done should be high—from 75° to 85° F. In such a room the loss of heat from the patient by radiation is much less than when the operation is done in a cool room. Loss of heat from the patient can be lessened also by the manner in which she is dressed. It is best that she be well wrapped in blankets, and that as little of the skin surface be exposed to the air as the necessities of the particular operation permit. For the same reason the use of *wet* towels or gauze about the patient is to be deprecated. Evaporation from such wet materials chills the patient. Much can be done also by the proper administration of the anæsthetic. Patients should not be drowned in ether. Enough only should be given to maintain anæsthesia, unless, to meet a certain indication, absolute relaxation is required. The prevention of hæmorrhage and the avoidance of rough handling of the patient, especially of the abdominal viscera, are matters of the greatest importance in preventing shock. The careful surgeon gives due attention to each and all of these matters of detail, and no one so much appreciates their importance as he who has to deal constantly with grave operations. This applies especially to the abdominal surgeon, because, in many cases, when he begins an operation the life of the patient depends upon its completion. He can not do a part of it and postpone the rest to another day. In many of the long, tedious operations which he is called upon to do, involving multiple visceral adhesions, the very life of the patient itself depends upon attention to every detail to prevent shock, so that he may have time to complete the operation *secundum artem*.

The active treatment of shock consists in supplying to the body heat which has been lost, in stimulating the heart to better work, in counteracting nervous depression,

* Read before the Obstetrical Society of Philadelphia, December 7, 1893.

and in overcoming irregular action, especially on the part of the vaso-motor nervous system, until reaction shall occur and the vitality of the patient can be sustained by alimentation. In describing the treatment of shock I shall simply give an account of my own practice in the treatment of this condition.

If during the operation the patient begins to suffer from shock and there is reason to expect that this will increase, especially if the operation is not yet completed, I begin at once actively to treat it. A fifteenth of a grain of sulphate of strychnine and a fiftieth of a grain of digitaline is given hypodermically, and the dose of strychnine is repeated every fifteen minutes until some improvement is manifested in the pulse or a fifth of a grain has been given. If improvement does not manifest itself promptly, and especially if shock be profound, or if the patient has been markedly prostrated before the operation, a hundredth of a grain of atropine sulphate and two or three minims of a one-per-cent. aqueous solution of nitroglycerin are given hypodermically. In still other cases from three to six grains of citrate of caffeine are administered in addition. During this time hot-water bottles have been put about the patient, and if the operation is an abdominal section, at times warm water is poured into the peritoneal cavity. I have also employed hot beef-tea enemas, but, as a rule, an enema is not given, because it interferes with the completion of the operation, which is just as important as any one detail in the treatment of shock, if not more so. In fact, it is of the highest importance to complete the operation as rapidly as is consistent with safe work. The same is true of the after-dressing of the patient, who should be put to bed as promptly as is feasible.

The bed should have been warmed by having hot-water bottles in it while the operation was in progress, and in all cases in which shock is a marked feature the sheets should be removed and the patient placed between warm, dry blankets. At this stage the use of whisky by enema is of service, and at times it is proper to use whisky during the operation, especially if shock is not another name for too much ether. The use of whisky or alcohol in any shape is not good treatment for an overdose of ether. The best way to employ whisky, as a rule, is to give it by enema with hot beef tea—about two ounces of whisky and six ounces of beef tea. Dry friction with the hand or with a dry cloth, especially to the extremities if they are covered with clammy perspiration, will do much to bring about reaction, and also will lessen radiation from the surface by preventing evaporation of the perspiration. Morphine in small doses, an eighth of a grain or less, is also useful as a heart stimulant and as an anodyne if, when the patient becomes conscious, there is marked pain. The morphine not only acts as a stimulant itself, but prevents depression which would result from severe suffering. So much for the immediate treatment of shock. Under ordinary circumstances, when the shock is marked and yet not so profound as to be alarming, within half an hour strychnine can be pushed to a fifth of a grain, atropine to a fiftieth, caffeine to five grains or more, and digitaline to a twenty-fifth of a grain, or, what is really better, tincture of digi-

talis to half a drachm, with the fiftieth of a grain of nitroglycerin.

If the crisis passes and yet the patient remains in a markedly depressed state, the question of treatment for the ensuing twenty-four or forty-eight hours comes up. The use of external heat should be continued until the temperature of the body becomes normal, and even longer should the patient complain of chilliness. But the sheet anchors of safety are strychnine, digitalis, and whisky. In a marked case it is my habit to give the following order: To give hypodermically sulphate of strychnine, a thirtieth of a grain, one hour; tincture of digitalis, fifteen drops, with the fiftieth of a grain of nitroglycerin, the next hour; three grains of citrate of caffeine the third hour; and an enema of whisky, two ounces, and beef tea, six ounces, the fourth hour. This order I have had carried out many times for twenty-four, forty-eight, and even seventy-two hours. In the worst of cases, for its temporary effect, cocaine has been employed in addition to the above, also small doses of morphine if much pain and especially if great restlessness were present. It is my experience that most patients will take a fifth of a grain of strychnine in twenty-four hours without manifesting symptoms of strychnism. I have not employed the heroic doses described by some writers, such as half a grain within two hours, but in a desperate case, watching it carefully, I should not hesitate to give repeated doses of a fifteenth of a grain every half hour for a short time until some symptoms of irritation of the spinal cord appeared. We certainly have no more reliable exciter of the nervous and muscular systems than strychnine, nor any drug which is more capable of maintaining its effect.

Digitalis is also a very reliable drug in the treatment of shock. It is capable of whipping up the heart to increased work, especially for a few days and until a sustained effect can be secured by alimentation. This is exactly what is required in the treatment of shock. Digitalis has, however, one effect which is undesirable. It causes a contraction of the arterioles, and thus increases arterial pressure, so that while it whips up the heart to do increased work, it also hinders the heart through the increase in arterial pressure; hence it is wise in the treatment of shock to combine digitalis with nitroglycerin, which overcomes this bad effect of digitalis. The combination is much more effective than either drug alone. Caffeine is a pure heart stimulant and can be administered freely without evil consequences. Alcohol used judiciously and in not too large quantities is one of our most important remedies. In shock following abdominal operations it is best administered by enema combined with beef tea, which is itself a stimulant. Later in the case champagne by the mouth is often of service, but it fills only a partial indication and is not to be compared in value with whisky when this can be ingested and retained.

The management of the diet in the treatment of shock is also important. Immediately after an operation, accompanied by much shock, the stomach, as a rule, is not retentive; hence it is wise for a time in no case to administer much aliment of any description by mouth. Some hot black coffee or hot beef tea is as much as should be given. When

the stomach becomes retentive, light, easily assimilable food should be employed, as beef tea, broth, milk (preferably peptonized), egg-nog, punch, etc. These foods should be administered in small quantities, frequently repeated. The question of alimentation in the treatment of shock following abdominal operations offers certain peculiar difficulties. Under ordinary circumstances, when shock is not a special feature, it is the rule to administer no food to the patient who has had a celiotomy for from thirty-six to forty-eight hours after the operation. Then broths or beef tea, from two drachms to an ounce, or two drachms of milk with one of limewater, are given every half hour, and if retained the quantities are increased and the intervals lengthened until about the fourth day after operation the patient is put upon liquid diet, the amount being regulated largely by the appetite. But in cases accompanied by marked shock, if the stomach proves retentive, it is wise to begin the administration of milk or beef tea at the earliest feasible time, the quantity being increased as rapidly as in the judgment of the surgeon the patient is able to digest and assimilate. In some critical cases lives will be saved by judicious alimentation which would be lost were the usual rules applicable in abdominal surgery followed.

It may be questioned whether the term shock should be applied to conditions which persist for one, two, three, or more days. It is customary to consider that shock is of temporary duration, and that it ends either in the prompt death or in the recovery of the patient. But there are cases in which it is difficult to assign a name for the condition of patients if it be not shock. I refer to those cases in which the patient exhibits marked shock after operation, and in which, although after a time the temperature of the body becomes normal and remains so, yet the patient's vitality remains at a very low ebb, the pulse continues rapid, small, and feeble, the cutaneous circulation is not restored, the surface of the body being cool and pale, and where no other symptoms are present except those of pronounced asthenia. This condition must be called shock. The condition persists until it is relieved by alimentation, as the nerve and heart stimulants—strychnine, digitalis, and even whisky—are not curative. I have had patients die in this condition as long as a week after operation without having manifested other symptoms than those of pure asthenia, and in which the post-mortem examination showed no cause of death. On the other hand, I have seen patients recover from this condition, improvement becoming manifested upon the third, fourth, or fifth day, when it had appeared that death was imminent from failure of the heart and respiratory centers. It is in such cases that judicious alimentation is of the highest importance.

In this class of cases the administration of oxygen gas by inhalation is at times of service. All the vital functions are at such a low ebb that any agent which is capable of improving the processes of metabolism is of value. My experience with the use of oxygen for this purpose is limited to one case, which was one of marked shock following an operation for double pus tubes in a woman reduced to the last extremity by hectic. She went to bed with a

pulse of 180, with cool and blue skin, and every other evidence of the profoundest shock. The pulse did not fall below 145 for three days, near the close of which period there was every indication of early death from pure asthenia. The plan of treatment already detailed was followed out in her case, and in addition oxygen gas was administered during one day. It seemed to be of great benefit; at all events, she passed out of the shadow of death and made a good recovery.

INTUBATION IN THE ADULT.*

By GEORGE M. LEFFERTS, M. D.

I HAVE chosen this subject for two reasons: First, because it possesses certain elements of novelty, and thus meets a difficulty that stands in the way of a choice of any topic suitable for presentation to an audience of experts. Intubation in the child has been almost exhaustively discussed during the past few years, has long since passed its period of probation, and has assumed a well-defined position as a remedial resource for the relief of dangerous conditions. Intubation in the adult, on the contrary, as a glance at contemporaneous literature will show, is a question that has as yet had but comparatively little attention bestowed upon it. It therefore offers a suitable and, I believe, a fruitful field for our cultivation.

Secondly, this same topic having been selected for a general discussion in the tenth section of the coming Eleventh International Congress, and I, together with Dr. Schmiegelow, chosen to introduce it, it has seemed to me desirable that it should first be brought before this American audience, in the home of modernized and utilized intubation, in order that I might avail myself of your experience and criticism, and thus be able to give an authoritative and even national weight to what I may have occasion to say in Rome.

Any discussion concerning the question of intubation in the adult presupposes the theory that the ultimate object of the introduction of a proper tube into the diseased larynx is, first, to overcome the most urgent acute symptoms of obstructed laryngeal respiration; secondly, to restore, as far as may be possible, the interior of the stenosed larynx to its normal caliber, and even configuration, by relieving the stenosing conditions; thirdly, to obviate the necessity of resorting to either a laryngotomy or a tracheotomy; and, finally, to facilitate the withdrawal of the tracheal cannula in certain cases where difficulties arise to prevent it.

Regarded from these standpoints, we may either deal alone with the question of the technique of the procedure, illustrating its practice by the detail of cases, or, as I have chosen to do, discuss its theory, in which event such discussion practically resolves itself into an enumeration of a variety of intralaryngeal conditions for the relief of which the use of the large-sized or adult intubation tube has, within the past two or three years, been employed, together

* Read before the American Laryngological Association at its fifteenth annual congress.

with such criticisms and deductions as our present knowledge warrants of the practical value of the operation in such cases.

The intralaryngeal conditions alluded to, unheard of—unthought of, perhaps—in connection with intubation in the early days of the art, are many, varied, and sometimes even curious. Their number is rapidly extending, as keen observers are attracted to the possibilities and advantages of laryngeal intubation as a substitute for older and more incomplete measures. Still, it must be conceded that the subject is in its infancy and that our experience is not yet such as to give ample and reliable statistics upon which to formulate definite propositions. An essay, then, like the present will, of necessity, consist largely of a compilation of the ascertained facts and deal to a certain extent with much that is problematical or at least not proved, and may serve alone to establish a new point of departure for future and further research. Illustrations of the practicability, at least, of the following propositions are in the majority of instances forthcoming, and their clinical details can be found in our literature; other corroborative cases have been treated at my clinic at the College of Physicians and Surgeons, New York. Where such clinical proof fails, I still offer the proposition in the hope that future research will justify my venture. I have, upon due consideration, thought it desirable to sacrifice these details for the sake of conciseness, and because each case demanding intubation, whatever be the cause, must be treated according to the indications that it individually presents; in other words, precedent will not guide us.

None of the many successes that are reported have been easily won. Patience, ingenuity, manual skill have all been demanded; many failures need to be recorded. The general outcome of our experience, however, is such as to encourage further earnest pursuit of what is clearly attainable.

In my enumeration I shall not pause to discuss the question of intubation in either acute or chronic syphilitic affections of the larynx. I have elsewhere* advanced clinical evidence of its effectiveness and recorded my belief as to its great practical value. Both this evidence and my views have been amply corroborated in the three years that have elapsed since they were presented, and the procedures long since removed from the bounds of a possibility to the domain of an actuality. Nor do I consider it necessary to call attention to the now universally conceded value of intubation in membranous laryngitis further than to recall to recollection that in the adult it has been practiced under the same conditions and with the same brilliant results as in the child—this in many recorded instances.

Professions have recently been advanced, on good authority, of a cure of abductor paralysis of the vocal cords by means of intubation. That relief to the inspiratory dyspnoea may thus be given there can be no question, but that a *cure*,

as I understand the word, the restoration of normal physiological abductive or respiratory movements to the vocal cords can thus be obtained, I must doubt; the organic causes alone producing the paralysis would prevent it, were other reasons wanting. This statement applies to chronic cases, or paralyzes of long standing; in others, where the inspiratory dyspnoea is dependent upon a paresis of the abductor muscles from commencing acute degenerative processes in them, especially if these are of myopathic origin, or due perhaps to some temporary peripheral lesion, transient pressure upon or slight injury to the recurrent laryngeals, the maintenance, by means of the intubation tubes, of even a small respiratory opening at the glottis may not only avert the immediate performance of tracheotomy, but also stimulate normal physiological movement, and thus preserve muscular nutrition by exciting a certain degree of muscular activity; the experiment is at least worth a trial. This latter indication also exists, and I believe has been successfully met, when the tubes were employed early in the case, in those instances where, after a tracheotomy, paresis of the abductors prevented the removal of the tracheal cannula.

Undoubtedly intubation is demanded and will have a certain value in relieving the dyspnoea dependent upon an acute bilateral abductor paralysis of constitutional origin. I have reported two such cases due to syphilis,* in which a cure of the paralysis followed an antisyphilitic treatment. In neither was the dyspnoea of such a grade as to necessitate a tracheotomy; had it been, or should it be in other like cases, intubation would relieve the temporary urgency of difficult respiration and obviate resort to a more formidable operation, aside from affording safety to the patient during the period of iodide administration and the establishment of its physiological and remedial effects.

Aside from these few—too few—instances, I must doubt the efficacy of intubation as a *cure* for bilateral abductor paralysis. There can be no difficulty in passing a tube between the closed but flexible vocal cords; there is no doubt as to the relief of inspiratory dyspnoea while it is in position, but the necessity of the patient's wearing it having arisen, can it again be dispensed with? It then, in chronic cases, becomes a choice between it and the tracheotomy cannula, and for permanent use the latter possesses advantages over the former. In one way alone in such cases can the intubation tube effect a passage, practicable and permanent, at the glottis which will allow of its eventual removal, or of that of a tracheotomy cannula—namely, by causing in the first instance pressure upon the parts most closely constricting it, then an ulcerative process and destruction of tissue, granulation and a molding of the inflammatory products about the tube, their organization and cicatrization following; such a process might eventuate in a cicatricial opening or canal between the now disorganized vocal cords that would remain sufficiently open for the passage of the respiratory current, especially if the process had been aided in the first instance by transverse incision of each vocal cord near its center.

* Intubation of the Larynx in Acute and Chronic Syphilitic Stenosis as a Substitute for Tracheotomy and the Method of Schroetter. A paper read before Section Twelve of the Tenth International Medical Congress in introducing a discussion upon Syphilis of the Upper Air-Passages. *Medical Record*, October 4, 1890.

* *New York Medical Journal*, December, 1878.

I can not, however, regard such a result, even if attainable, as a cure for abductor paralysis. It could only be reached by long, tedious, and difficult steps; the outcome would always be problematical, and tracheotomy at the outset or the retention of an already existing tracheotomy wound seems to me preferable.

Turning to another class of cases, where, it may be, a better promise of success is before us: intubation is doubtless indicated in some cases of laryngeal dyspnoea dependent upon abductive immobility of the vocal cords, due to *ankylosis* of the arytenoid articulations from either constitutional causes leading to laryngeal affections or non-suppurative adhesive arthritis due to local inflammatory changes, perhaps to mechanical fixation of the joints, by plastic infiltration of the tissues in their neighborhood, or by cicatrices of the same parts due to injury, typhoid, syphilis, or other ulcerative conditions, all of which bind them in an immobile position. In such instances well-directed pressure by means of a series of graded and even specially shaped intubation tubes will, it is believed, exert—indeed, in one or two reported instances at least has exerted—a favorable influence in promoting absorption of the effused material, or, by forcibly breaking up cicatricial attachments, has freed articular movement. This aside from the relief that the use of the tubes has afforded to respiration and the fact that tracheotomy may thus be avoided.

A novel but very reasonable indication for the use of an intubation tube is as an intralaryngeal splint in cases of fracture and displacement of the laryngeal cartilages due to direct injury. In such instances, after remolding the distorted parts of the cartilages into normal shape and position by external manipulation, the internal use of a large-sized tube will be of service in retaining them there during the process of repair. This retention may be aided by the employment of such external supports and dressings as are indicated under special circumstances.

The intubation in this same class of patients meets a second requirement that commonly arises—namely, acute dyspnoea due to oedematous infiltration or to the development of hæmatomata, usually of the aryteno-epiglottic folds, as has been shown in cases treated at my clinic. Two serious results of fracture of the larynx are thus possibly avoided—the necessity of immediate tracheotomy, and remote distortion or stenosis of the laryngeal cavity.

In chronic stenosis, the outcome of intralaryngeal conditions produced by fracture of cartilages that might perhaps have been averted by the timely and proper employment of the above measure, we have had at our clinic ample illustration of the excellent service rendered by intubation in dilating cicatricial contractions, and even in some measure replacing distorted parts. One such noteworthy result has recently been reported.

Another novel indication may perhaps in the future be successfully met by employing a proper sized and shaped intubation tube in cases of compression of the larynx or upper trachea from external causes, thus maintaining a respiratory passage. It has already been used for this purpose in acute tracheal stenosis caused by the pressure of an acute thyroiditis.

The tubercular larynx does not commend itself for many reasons as a proper site for the sojourn of an intubation tube. Still, the operation of intubation has been successfully performed more than once in laryngeal phthisis for the relief of dyspnoea dependent upon chronic oedema, for perichondritis, and for bilateral abductor paresis due to ankylosis of the arytenoid articulations—in these cases to the exclusion of tracheotomy. Perhaps in the future our experience may lead us to prefer it and to employ it exclusively. Either operation may only be chosen; in extreme cases either can give but temporary relief; to-day it seems to be simply the choice of the lesser of two evils.

In the treatment of the acute inflammatory affections of the adult larynx and their results intubation will play no unimportant rôle in the future if we may judge from the brilliant service that it has already rendered in the acute laryngeal diseases of childhood. Acute subglottic laryngitis is rare in the adult, but not unknown. Its symptoms are those of laryngismus stridulus in the child, and the diagnosis as to cause not difficult if the laryngoscope is used. To my knowledge, however, mistakes have been made, the rarity of croup in the adult and the default of a direct examination misleading the attendant into the performance of a tracheotomy in one case and to preparations for it in another. In any instance, in the adult, where the deep-red-colored mucous membrane can be seen to bulge out symmetrically in smooth, rounded masses from beneath the vocal cords, notably encroaching upon the subglottic space; where dyspnoea, sometimes spasmodic, always urgent, demands prompt assistance—intubation affords a reliable means of assured relief.

This is true also in those morbid conditions of the larynx characterized by an extensive and sudden serous infiltration of the loosely attached parts, in which the oedema is the prominent and practically the only local lesion. Ample experience has proved the efficacy of intubation and the fact that it alone may be depended upon when scarification fails to relieve the oedematous parts. The day of tracheotomy in oedema of the glottis has probably passed. In one instance at least, upon record, intubation has been practiced in erysipelas of the larynx; and the temporary use of the tube, to the exclusion of other and harsher measures, naturally suggests itself as a sensible and practical means of relieving the dyspnoea incident to traumatic laryngitis, especially that due to scalds and burns.

That acute perichondritis, especially of the cricoid and of whatever specific nature, may usually be combated, as far as its most urgent symptom—dyspnoea—is concerned, by the same measure, will, I think, be conceded.

Spasm of the glottis in the adult, usually purely reflex in character and rarely dependent upon any morbid lesion of the nerve centers, an affection involving discomfort and apprehension rather than danger, has in a number of instances upon record imperatively demanded the performance of tracheotomy. It seems to me more reasonable, in view of the temporary necessity for the use of any instrumental aid, to substitute the comparatively simple and safe intubation for the more serious procedure. The former operation has

been employed, but unsuccessfully, in a girl for pronounced aphonia spastica.

Among the many chronic affections of the larynx are found at least two conditions in which an intubation is of service in replacing older, more severe, and less perfect measures. First, in that rare form of chronic laryngitis in the adult that develops mainly in the subglottic region and results in certain hypertrophic changes that seriously encroach upon the breathing space. Energetic surgical procedures, usually at last a tracheotomy, have in the past been necessarily practiced to relieve life-destroying dyspnea. For the future, I believe that progressive intubation, dilatation with partial or even complete resorption of the hyperplastic tissue by means of regulated and directed pressure, will answer the indications and largely supplant all the other surgical operations that experience has so often proved to be ineffectual in opening and maintaining a respiratory passage.

Progressive intubation has been used, so the records show us, in cases of general hypertrophy of the laryngeal mucous membrane and resultant partial stenosis with some measure of success, and certainly played an important part in the result attained by Roaldes in his case of atresia of the larynx dependent upon adhesion of the vocal cords, and general distortion of the laryngeal cavity due to cicatrization following catarrhal ulceration.

It is hardly conceivable, in these days of precision in diagnosis and improved instrumental aids, that a multiple papilloma of the larynx in the adult would be allowed to attain such a size as to interfere seriously with respiration; still, it might happen; also that proper instruments were not at hand for the endolaryngeal removal of the neoplasm. In this emergency intubation would be preferable to tracheotomy as a temporary means of relief to the dyspnea and to afford time for other operative steps. Several such cases are recorded as occurring in children, and have been brought to a successful issue by such an expedient.

Two procedures, thus far only employed in the case of children, may have their value in certain rare instances in the adult. The first of these is an intubation with a series of progressively graded tubes, having for its ultimate object either the necrosis or interstitial absorption of the imperfectly organized tissue of the papillomatous growth by continued pressure. I can not believe that such a procedure will ever find general acceptance, being far inferior, both in intent and execution, to several other well-recognized and more effectual instrumental means of removal.

The second suggestion concerns the employment of large, thin-walled cylindrical intubation tubes as an aid in the removal of difficult laryngeal neoplasms. Each tube is provided with an appropriate fenestra that looks toward the exact site of the growth. The tube introduced, the growth should appear within the fenestra, and is then removed from the lumen of the tube by forceps, curette, etc., without chance of injury to surrounding parts. It appears upon the mere reading that such a procedure might be of service in affording protection in those cases of broad, sessile growths, firmly incorporated with the underlying tissues that are so difficult of radical extirpation, and

where, for instance, thorough and deep curettement is necessary.

Still more promising does it seem as an aid in the removal of neoplasms located in the subglottic region, one notoriously difficult of access. The separation and immobility of the vocal cords, secured by the introduction of the large fenestrated tube between them, the location of the exact site of the growth with the assistance of said fenestra, perhaps its direct presentation within it, should theoretically render what has always been a serious operation a more practicable and easier one. It should be added that it will require a practiced and skillful hand.

Cases occur in which small foreign bodies lodge in the larynx—small enough to pass the lumen of a special intubation tube of large caliber, yet large enough to cause by their presence laryngeal dyspnea, either immediately by reflex spasm or remotely from œdema and swelling, the dyspnea being urgent enough to indicate a tracheotomy, but in which, as experience has shown, intubation answers every purpose, as follows: Either the foreign body is dislodged upon the mouth of the tube during its introduction and is at once expelled through it, or it is pushed from the larynx into the trachea, and thence, being loose, is expelled through the tube by violent coughing.

In other cases where the foreign body is large enough to dangerously occlude the glottis, too large to pass through the intubation tube, suffocation imminent, and for any reason tracheotomy not immediately available, I believe that intubation is indicated to gain time and obviate a pressing necessity, when it is a possibility to insert the tube through the larynx and past the foreign body.

It has been suggested that intubation will be effectual in preventing the dangerous results of reflex laryngeal spasm when the foreign body in the air-passage is of a fluid character; blood, for instance, passing suddenly and in large quantity into the trachea in pulmonary hemorrhage, operations upon the mouth, throat, etc., provokes reflex spasm in its violent but ineffectual efforts to pass quickly in large volume through the larynx, and asphyxia ensues from its fatal accumulation in the trachea and bronchi. The temporary use of a large-sized tube would prevent the excitement of such laryngeal spasm by affording a free and unimpeded exit for the collection of fluid in the trachea.

My enumeration of suitable or probable good causes for an intubation must now include those so-called obstacles to the removal of a tracheotomy cannula that experience shows us not uncommonly occur when its withdrawal has been unduly delayed to a time long subsequent to the infliction of the tracheal wound. A study of the nature of these obstacles is sufficient to render at least reasonable the suggestion that we have in the intubation tube a means of overcoming many of them, and the theory has been verified in practice in some instances.

When dyspnea is dependent upon a stenosis caused by excessive granulation tissue springing from the upper borders of the laryngotomy or tracheotomy wound and filling the lower larynx or upper trachea, or when inflammatory swelling or hyperplastic hypertrophy of the laryngeal mu-

cous membrane below the glottis and above the limits of the wound into the air-passage exists, intubation surely will be of service; its good results have been already recorded in our literature.

Cases in which a cicatricial stenosis or a membranous web has developed, either at the site of the original incision, at some point above it, or in the trachea itself, as a result of undue pressure by the cannula, likewise present a suitable indication for the operation.

The question as to the value of intubation in overcoming the obstacle to the removal of the tracheotomy tube presented by the bilateral-abductor paresis that may be a sequel to the operation has been elsewhere mentioned in this paper.

Finally, I raise the query as to the possible service of an intubation in those curious, often unexplainable cases of inspiratory spasm that usually immediately, perhaps remotely, follow the attempted removal of the cannula.

In the three years that have elapsed since my paper on intubation in the adult larynx in syphilis was read at Berlin* no valuable modifications in the technique of the operation there described have been offered and no changes in the armamentarium suggested that are of any great importance. Both the theory and the practice of the art then remain practically the same, and I need occupy no time in repetition of what is already both known and conceded. My further experience has taught me that some boldness in the treatment of acute cases of laryngeal stenosis, a ripened judgment in the proper selection of chronic ones, the acquirement of considerable manual skill in the use of instruments, a competent knowledge, alone taught by practice, as to the use and change of suitable tubes, and, finally, both patience and persistence, are all needed to crown intubation with success. Just in proportion as these qualifications are forthcoming will the statistics of the operation improve in times to come. What I have written concerning the indications for the use of the intubation tubes in the adult is based solely upon the knowledge of to-day.

My summary is by no means conclusive; it will, I believe, be materially increased in the future as new indications present themselves; it will also need some modification, as certain indications are discarded as being impracticable of fulfillment. Meanwhile the need is for a larger collection of facts well observed by many persons. It has been shown that deductions drawn from the few at present at our disposal can not in many instances be regarded as conclusive. New facts, therefore, are desirable, and, widely discussed, tested, and, if possible, proved, must lead to advancement both in the science and in the art of adult intubation. To direct attention to this present need of increased observation, to record the known and encourage research for the unknown, has been the purpose of this essay.

* Intubation of the Larynx in Acute and Chronic Syphilitic Stenosis, p. 16 et seq. Reprint from the *Medical Record*, October 4, 1890.

THE RELATIONS OF THE HEART AND LUNGS TO THE ANTERIOR CHEST WALL,

AS DETERMINED BY COMPOSITE PHOTOGRAPHY.*

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(Concluded from page 568.)

COMPARATIVE MEASUREMENTS.

1. BASE OF THE HEART:

- a. "Level of second costal cartilages" (Quain, Gray).
- b. "Below level of second costal cartilages" (McLachlan, Allen, Sibson).
- c. "Second right interspace to left first interspace" (Wilson).
- d. "Just below middle of right to above middle of left second interspaces" (Haynes, Subject I).
- e. "Upper border of the third costal cartilage" (Holden, Treves).
- f. "Junction of third cartilage with right border of sternum" (McClellan).

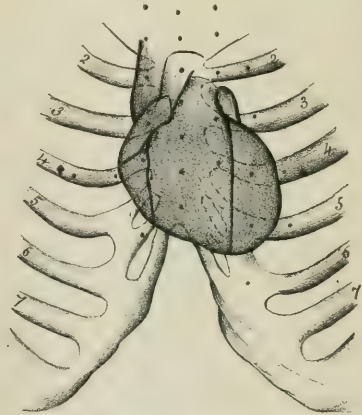


FIG. 1.—Subject I. Composite photograph of the chest and heart.

- g. "Upper margin of third right cartilage to center of second left space" (Haynes, Subject II).
- h. "From center of third right space to upper margin third left cartilage" (Haynes, Subject III, suspended vertically).

2. LENGTH OF BASE:

- a. Not given (Quain, Gray, McClellan).

* Abstract read before the Sections in Anatomy and General Surgery of the First Pan-American Medical Congress. In the first portion of this article, published in the *Journal* for November 11th, the following errors should be corrected: Page 565, second column, tenth line from the bottom, for "cross the median line at its seven-and-a-half-inch point. Over the xiphi-sternal articulation to the left," etc., read *cross the median line at its seven-and-a-half inch point over the xiphi-sternal articulation To the left, etc.*; page 567, first column, twenty-first line, for "at" read *opposite*.

b. "Half an inch to right and an inch to the left of sternum" (Holden).

c. "Half an inch to right and an inch and a half to left of sternum" (McLachlan).

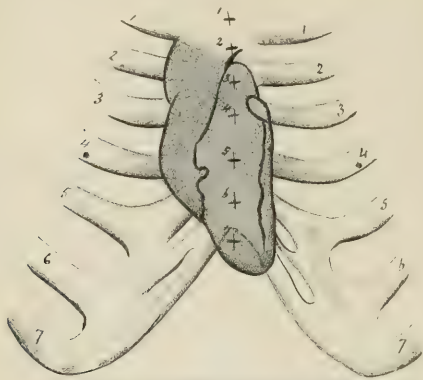


FIG. 2.—Subject II. Composite photograph of the chest and heart.

d. "An inch to right and two inches and a half to left of sternum" (Wilson).

e. (Haynes) Subject I. An inch and a quarter to right and an inch and a half to left of median line, total two inches and three quarters. Subject II. An inch and five eighths and three quarters of an inch, respectively, total two inches and three eighths. Subject III. An inch and

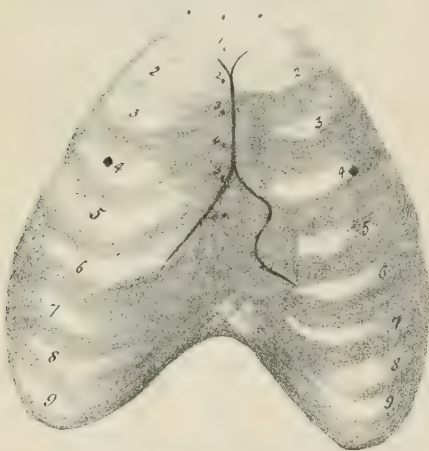


FIG. 3.—Subject I. Composite photograph of the chest and lungs (anterior border).

an eighth and an inch and three eighths, respectively, total two inches and a half.

3. APEX POINT:

a. "In fifth left interspace three inches and a half from median line" (Quain, Gray, McLachlan, McClellan).

b. With reference to left nipple.

"An inch and a half below and three quarters of an inch to inside" (Quain, Gray).

"Two inches below and an inch to inside" (Holden).

"Two inches below and half an inch to inside" (Wilson).

c. "Fifth left interspace at costo-chondral articulation" (Treves).

d. (Haynes) Subject I. Fifth left space two inches and a quarter from mid sternal line (at its seven-inch point). Subject II. Behind center seventh left cartilage three quarters of an inch from mid-sternal line (at its seven-and-a-half-inch point). Heart in I distended, in II contracted. Subject III. Behind interchondral articulation between fifth and sixth cartilages, an inch and a half from mid-sternal line (at its seven-and-a-half-inch point). Subject suspended, heart moderately distended with blood.

4. RIGHT BORDER: The farthest point reached from the mid-sternal line. Quain says an inch and a half; none of

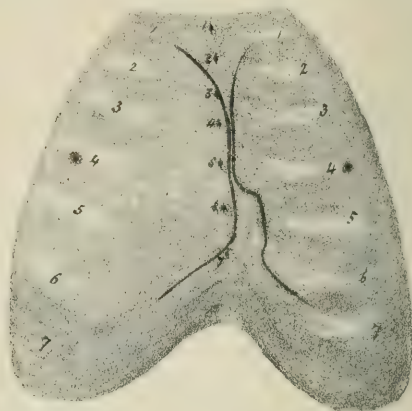


FIG. 4.—Subject II. Composite photograph of the chest and lungs (anterior border).

the other writers consulted mentioned it. (Haynes) Subject I. An inch and three quarters over fourth cartilage. Subject II. An inch and three quarters over fourth cartilage. Subject III. An inch over fourth cartilage.

5. LEFT BORDER: Farthest point reached from the mid-sternal line.

None of the above-named writers refer to it.

(Haynes) Subject I. Heart distended—"in diastole"—two inches and seven eighths over the center of the fourth interspace. Subject II. Heart contracted—"in systole"—seven eighths of an inch over center of fifth cartilage. Subject III. Midway between "systole and diastole," two inches over fourth interspace.

6. LOWER BORDER: The point at which it crosses the sternum—

a. "Bottom of the sternum" (Holden).

b. "Ziphi sternal articulation" (McLachlan).

c. "Upper third of ensiform" (Quain).

d. Haynes. Subject I. Middle of ensiform. Subject II. Zephi sternal articulation. Subject III. Middle of ensiform.

7. AREA OF CARDIAC DULLNESS IN INSPIRATION:

a. (Quain.) "Two lines from point of apex beat to the

middle line of the sternum—one horizontal, the other obliquely upward to between the fourth cartilages."

b. Gray quotes from Holden.

c. Holden quotes from Latham.

"Make a circle, two inches in diameter, round a point midway between the nipple and end of the sternum."

d. Treves quotes from Latham.

e. (McClellan.) "Line from middle of sternum, opposite fourth left costal cartilage, to the point of junction of the left fifth rib and its cartilage, and from this point horizontally back to sternum."

f. (Haynes.) Subject I. Heart expanded. A *quadrilateral space*, bounded on right by median line, below by lower border of heart, above by line from middle of fourth cartilages, along upper margin of fifth left cartilage, to an inch and a quarter from median line on the left, and from the last point draw a line downward to intersect the lower border of the heart three quarters of an inch from the left of the median line. Subject II. Heart contracted. All of the heart to the left of the median line and below the lower margin of the fourth left cartilage. Subject III. Lungs (in expiration) collapsed. Entire lower two thirds of heart to left of median line and below the upper margin of the fourth left cartilage.

8. AURICLES:

a. (Quain.) "The right auricle lies behind the sternal ends of the third, fourth, and fifth cartilages and the intervening portions of the intercostal spaces, and is also partially covered by the right edge of the sternum.

"The point of its auricular appendage is exactly behind the middle line, on a level with the upper border of the third costal cartilage.

"The left auricle extends vertically from the level of the lower border of the second left cartilage to the upper border of the fourth (sternal end).

"The apex of its appendage is in the lower part of the second intercostal space, or behind the third costal cartilage, about an inch and a quarter from the left of the sternum."

b. (Haynes.) Subject I. Right: The outline in the photograph is markedly "ear-shaped." It is behind the first inch of the third right costal cartilage, with the adjacent border of the sternum and the third space.

Left: Oval outline, half an inch by an inch, placed over a portion of the second space and third cartilage, the center of the area being an inch and a quarter from the left of the median line, and its long axis extending downward toward left.

Subject II. Right: Pear-shaped outline, base uppermost. Covers first inch from sternum of third right cartilage and space. Left: Behind the chondro-sternal articulation of the third left cartilage; oval-shaped; long axis as in No. I.

Subject III. Right: Distinctly auricular shaped. Includes fourth and fifth right cartilages for an inch from sternum and the included space, with the right half of sternum opposite the fourth chondro-sternal articulation. Left: Behind the third left cartilage, its center an inch and a quarter from the median line, its long axis inclined as in No. 1, and its shape the same.

9. AURICULO-VENTRICULAR GROOVE:

a. (Quain.) "The auriculo-ventricular sulcus corresponds with a line drawn obliquely upward from near the sternal end of the sixth costal cartilage on the right side to the third cartilage on the left.

b. (Haynes.) Subject I (approximately stated). A curved line with the convexity upward from the upper margin of the fourth right cartilage, an inch and three quarters from the median line, to the middle of the third left cartilage, an inch and three quarters to the left of middle line. This line crosses the center of the sternum on a level with the lower border of the third cartilages. Subject II. The line takes the same course as in I, except it ends at the lower margin of the third left cartilage, seven eighths of an inch from the median line. Subject III (suspended). A line convex upward from the upper margin of the sixth right costal cartilage, an inch from the median line, to the lower border of the third left cartilage, an inch and three eighths from the central line. The sternum is crossed on a level with the lower border of the fourth cartilages.

10. AORTA. First portion:

a. Commences "behind the sternum, on a level with the lower border of the third costal cartilage on the left side, and rises as high as the upper border of the second costal cartilage of the right side. Its length is about two or two and a quarter inches" (Quain).

b. "Commences on a level with the lower border of the third costal cartilage behind the center of the sternum, passes obliquely upward to right side as high as upper border of second right costal cartilage. It is about two inches long" (Gray).

c. "Its origin is on the left side of the middle of the sternum, about on a level with the lower border of the third costal cartilage, ascends with a slight curve, the convexity looking forward and to the right side as far as the upper border of the second costal cartilage of the right side. It is about two inches in length" (Holden).

d. "The aortic opening is behind the left border of the sternum, close to the lower edge of the third cartilage. The trunk ascends behind the second cartilage of the right side" (Treves).

e. (Haynes.) Subject I. Its axis corresponds to the median line. It is about an inch wide, and reaches from the upper border of the third cartilages to the middle of the cartilage of the first rib. It is about two inches long. Subject II. The aorta reaches from the upper border of the third right cartilage to the upper margin of the first cartilage. It is entirely to the right of the median line for the first two thirds of its course, and only curves toward the left after reaching the upper margin of the second cartilage. Same length as in Subject I. Subject III (suspended, not injected). Reaches from the upper level of the fourth cartilages at their sternal junction, entirely to the right of the median line, upward to the lower level of the first cartilage, where its center is behind the mid-sternal line.

11. PULMONARY ARTERY:

a. (Quain.) "The pulmonary orifice is placed opposite the upper margin of the third left costal cartilage, close to the sternum. The artery proceeds upward to its bifurcation

behind the second costal cartilage. It is nearly two inches long."

b. (Treves.) Essentially the same as Quain.

c. (Gray, Holden.) Do not give its surface relations.

d. (Haynes.) Subject I. Begins on a level with the lower border of the third cartilages, its center being half an inch to the left of the middle line. It proceeds upward and toward the left, and terminates just above the lower margin of the second left cartilage. Here its center is about three quarters of an inch to the left of the median line. The artery is a little over an inch wide and an inch and a half long. Subject II. Begins on a level with the lower margin of the third cartilages; its center behind the median line proceeds upward, inclining a little to the left, and ends on a level with the upper border of the second cartilages, its center being a quarter of an inch to left of middle line. It is about an inch wide and an inch and a half long. Subject III. Begins on a level with the lower margin of the third left cartilage, entirely to the left of the middle line, being about an inch and a quarter wide; passes upward to opposite the middle of the second left cartilage, where the center of the vessel is three quarters of an inch from the left of the median line. It is a little over an inch wide at its beginning and about an inch and a half long.

12. CORONARY ARTERIES. Subject I (heart distended): They run nearly vertical and parallel with the median line, the right an inch and the left an inch and three eighths from the same, the former from the lower border of the third right cartilage and the latter from the middle of the third left cartilage, and each extends to the lower level of the sixth cartilage. Subject II (heart contracted): The right artery is at an average distance of seven eighths of an inch from the mid-sternal line, parallel with the same (nearly), and extends from the upper border of the fourth to the upper border of the sixth cartilage. The left is parallel with the central line and three quarters of an inch from it, and reaches from the lower level of the third cartilage to the apex. Subject III (heart moderately distended): Right, from the upper border of the fifth cartilage close to the sternum to the middle of the ensiform. Left, from the lower margin of the third cartilage an inch to the left and parallel with the median line toward the apex.

13. THE ANTERIOR MARGIN OF THE LUNGS and the extent of their contact during inspiration:

a. (Quain.) "Meet at junction of manubrium and body of sternum, descend together, right sometimes projecting a little to left of middle line, as far as fourth costal cartilage; right lung continues straight course to sixth costo-chondral articulation; left slopes outward behind fifth costal cartilage, indicated by a line from fourth left chondro-sternal articulation to apex point."

b. (Gray, Holden.) "Anterior border of right lung corresponds to median line from junction first and second pieces of sternum as low as sixth costal cartilage. Anterior border left lung lies in middle line only as far as fourth costal cartilage."

c. (Treves.) "Meet in middle line at junction of manubrium and gladiolus; right continues vertically downward behind middle line to sixth chondro-sternal articulation;

left keeps close to right to fourth chondro-sternal articulation, when it turns off, following a line from fourth cartilage to apex of heart."

d. (Haynes.) Subject I: Converge from the apices and meet at the level of the upper border of the second cartilages a quarter of an inch to the left of the median line and run parallel with the same to the level of the upper border of the fourth cartilages. The right lung continues at the left of the middle line as far as the upper margin of the sixth chondro-sternal articulation, when it crosses to the right. The left turns outward along the upper margin of the fifth cartilage. Length of contact, nearly three inches. Subject II: The anterior border of the right lung crosses to the left of the middle line on a level with the upper border of the second cartilages and continues straight down to the lower level of the sixth costal cartilages at the sternum. The left nearly meets the right at the lower level of the second left costal cartilage, continues nearly in contact (and opposite the third space in actual contact) to the level of the upper border of the fifth left cartilage at the sternum, along the upper margin of which it passes to the left.

14. POINTS ON THE MID-STERNAL LINE opposite the centers of the sternal ends of the costal cartilages:

NUMBER OF CARTILAGES.	Subject I, male.	Subject II, male.	Subject III, female.
	Inches.	Inches.	Inches.
First	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1
Second	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2
Third	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Fourth	4 $\frac{1}{2}$	5	4 $\frac{1}{2}$
Fifth	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5
Sixth	6	6 $\frac{1}{2}$	5 $\frac{1}{2}$
Seventh	6 $\frac{1}{2}$	7	6 $\frac{1}{2}$

Distances between the cartilages themselves:

	Inches.	Inches.	Inches.
Between first and second	$\frac{1}{2}$	$\frac{1}{2}$	1
Between second and third	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Between third and fourth	1	1 $\frac{1}{2}$	1
Between fourth and fifth	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Between fifth and sixth	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Between sixth and seventh	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$

15. RELATIVE POSITION OF THE NIPPLES: All the authorities agree in placing them in the fourth interspace three quarters of an inch external to the junction of the ribs and cartilages, or rather more than four inches from the median line.

In the two male subjects (I and II) the nipples were over the lower half of the fourth ribs, three inches and a half from the median line; in the female subject (III) they were four inches from the median line, the right in the center of the fourth interspace, and the left over the lower margin of the fourth rib. In the males the measurements were made upon the thorax after removal of the superficial tissues; in the female upon the exterior of the chest before such dissection.

From a comparison of the preceding quotations and the original measurements we see that at many critical points there is a wide difference between the accepted re-

lations given in the text-books and those revealed by composite photography.

As regards the lungs, these differences are so small as to be of little importance, but in reference to the heart they are so pronounced as to make us wonder if the currently stated relations of heart and chest do not need revision. For example, is it not possible—nay, more than probable—that the authorities in placing the apex beat three inches and a half to the left of the median line have gone at least an inch over the mark? For the apex point in Subject I, where the heart is fully distended, is only two inches and a quarter from the median line. And it can not be said in explanation of this difference that the heart has been moved bodily toward the right. It has not, we can see, for its right border only reaches an inch and three quarters from the median line.

And it can not be maintained that the heart has been foreshortened by the camera at the expense of the chest, for the heart in the photograph is nearly five inches wide. Besides, this error of foreshortening is prevented by *measuring the distances upon the bony framework of the chest itself* before taking the photographs, and any foreshortening of the heart is compensated for by the same occurrence in the image of the chest, and the results are unimpaired.

Moreover, the heart has not received complete treatment by the authorities quoted, in that its auricles, its borders, and its great vessels have not been traced in sufficient detail upon the bony framework of the chest. This is due, no doubt, to the uncertainties of the methods used for ascertaining these relations. In these composite photographs the relations lost by the former methods are brought out with remarkable clearness and can be readily traced, and their details have been given in the preceding pages, too full to produce attractive reading, but not, I hope, for accurate reference.

In concluding this paper I offer the following summary of the external relations of the viscera in question.

These results comprehend the conclusions derived from the statements of the authors consulted and from my own observations:

CONCLUSIONS.

1. Base of Heart: A line crossing the sternum obliquely from the upper margin of the third right to the lower border of the second left costal cartilage, an inch and a half from the median line on each side.

2. Apex: In the fifth space near the upper margin of the sixth costal cartilage, two inches and a half to the left of the median line.

3. Right Border: From the right end of the base curved slightly outward to reach a point an inch and three quarters from the right of the middle line over the fourth cartilage and ends at the center of the fifth cartilage an inch from the mid-sternal line.

4. Left Border: From the left end of the base with a convexity outward to the apex. It reaches its greatest distance (three inches) from the sternal center over the fourth space.

5. Lower Border: A line curved downward at its beginning (at the lower extremity of the right border) and

ending at the apex, and slightly convex upward in its center as it crosses the middle of the ensiform.

6. Heart Dullness: A *quadrilateral* area to the left of the median line and below the upper border of the fifth cartilage, nearly two inches in vertical and an inch and a half in extreme lateral measurements.

7. Auricles. Right: "Ear-shaped," facing to the left, covering the first inch of the third right space and cartilage with the portion of the sternum adjacent to the latter. Its long axis measures about two inches and is inclined from above downward and outward. Left: Is a small oval space half an inch by an inch, its center an inch and a quarter to the left of the median line behind the second left space and third cartilage. Its long axis is directed from above downward and outward.

8. Auriculo-ventricular Groove: Is indicated by a line from the right to the left heart border, beginning on a level with the upper margin of the fourth right and ending on a level with the lower edge of the third left cartilage. This line is convex upward and crosses the middle of the sternum on a level with the lower border of the third cartilages.

9. Aorta: A little more than an inch wide and about two inches long. Extends from the upper border of the third to behind the middle of the first cartilages. At its beginning and ending its center is behind the median line, but in the middle of its course the artery is convex toward the right.

10. Pulmonary Artery: About an inch and a quarter wide and an inch and a half long (in photograph). Begins on a level with the lower border of the third and ends behind the middle of the second left cartilages. Below its center is half an inch and above three quarters of an inch to the left of the median line.

11. Coronary Arteries: Both are nearly vertical; they incline slightly toward the median line at their lower ends. Right, an inch from the mid-sternal line. Extends from the upper border of the fourth to the lower border of the sixth cartilage. Left, an inch and three eighths from the middle line in expansion and three quarters of an inch in contraction of the heart, extends from the middle of the third to the lower border of the sixth cartilage.

12. The Anterior Margins of the Lungs in Inspiration: Right lies to the left of the median line, a quarter of an inch from and parallel with it from the upper margin of the second to that of the sixth cartilage (sternal ends). The left is in contact with the right from the upper border of the second to the mid-point between the fourth cartilages, where it turns downward and outward along the upper margin of the fifth left cartilage. Length of contact, two inches and a half.

a. MALE (average of two).	Inches.	Distance from each other.	Inches.	b. FEMALE.	Distance from each other.
First cartilage.....	1½	..	1	..	..
Second cartilage.....	2½	½	2	1	1
Third cartilage.....	3½	1½	3½	1½	1½
Fourth cartilage.....	4½	1½	4½	1	1
Fifth cartilage.....	5½	½	5	½	½
Sixth cartilage.....	6½	½	5½	½	½
Seventh cartilage.....	6½	1	6½	½	½

13. The centers of the sternal ends of the costal cartilages are opposite the distances on the mid-sternal line, measured from the suprasternal notch, as shown in the above table.

14. Nipples: Over the lower margin of the fourth rib, four inches from the middle line.

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- 131 EAST EIGHTY-SIXTH STREET.

RECENT STUDIES

IN NAUPATHIA, OR SEASICKNESS.

SYMPTOMATOLOGY, DIAGNOSIS, PATHOGENESIS,
AND TREATMENT BY A NEW AND EFFICACIOUS METHOD.

By WINSLOW WARNER SKINNER, M. D. (PAR.),
FORMERLY SHIP'S SURGEON ON SEVERAL TRANSATLANTIC LINES, ETC.

SEASICKNESS is an affection about which there are many theories and for which a legion of different remedies have been vaunted. This is because it has not been thoroughly studied, and consequently no logical method of treatment has been settled upon that will oppose promptly, constantly, and efficaciously the numerous symptoms of this affection.

The object of this review of seasickness is to give the most complete description of the subject extant and to offer to the medical profession a means of combating the affection that can be relied upon.

There is hardly a morbid state to which man is subject that has resisted the prescriptions directed against it as much as this; there is hardly one which has caused the physician so many deceptions and the patient so much discouragement as this. Therefore the physician has in fact almost wholly renounced treating seasickness in the hope of positively curing it, and the patient rarely calls upon the ship's doctor to treat it. It is truly a strange spectacle of our times to see on board of a great transatlantic liner, for instance, hundreds of passengers violently seasick, keeping their berths, vomiting each instant, moaning, and really suffering atrociously, while the ship's physician, although possessing the medical knowledge and the therapeutic means of our day, is powerless to relieve them.

But this state of impotence in face of such an evil ought not to last indefinitely. Recent investigations made by the writer indicate that there is an efficacious treatment for naupathia, and that the physician will no longer be without arms against this affection. These arms, however,

are chosen from among substances at once the oldest and the most active in pharmacology.

It is not lightly and without reflection that the account of our investigations has been prepared for publication. We come with facts and figures and know whereof we speak. We lay them bare for the examination of all, that all may judge of the value of the method of treatment herein explained. Seven years have already passed since the first successful trials of this method of curing seasickness were made. During this time the substances recommended for administration have been thoroughly tried. Laboratory experiments* upon the lower animals were made by us in Paris with Professor Hayem's apparatus with the view of determining the effect of these substances upon the blood pressure. Above all, they have been tried upon the human subject a great number of times. The author has made a special study of seasickness, and his voyages as ship's surgeon amount to nearly sixty thousand miles, while more than twenty-five hundred passengers have been directly under his care. Written clinical reports, eighty-seven in number, of typical cases of naupathia form the basis of this article, and the number of times the remedies have been exhibited rises to over three hundred. He may therefore justly claim experience in the matter in hand. This experience was gained in voyages on French steamers plying between France and South America, between Belgium and the United States, between France and the United States, and between Portugal and the United States.

It was during a voyage from Havre to Buenos Ayres and return, on board the steamship Dom Pedro, that this method was employed for the first time. The long voyage lasted two months and a half and furnished ample opportunity to observe seasickness, and indeed not only among passengers but also among seamen. Details of many cases will be given in another part of this article.

I. SYMPTOMATOLOGY.—In order to accurately understand the pathogenesis of naupathia, which will be elucidated later on, it is necessary to have in mind the *principal symptoms* of this affection, which are much more numerous than former writers have supposed. It will subsequently be seen how these many and diverse symptoms are all united by a common underlying tie which, once perceived, not only explains and harmonizes these various phenomena, but also furnishes an explicit guide to their correction and the cure of seasickness.

1. The most important of these symptoms, which are also the most distressing to the patient, arise from the *central nervous system*, and especially from the brain (cerebrum) and the medulla oblongata. To this category belong the extreme prostration of the patient; the asthenia and feeling of great weakness, which render the seasick incapable of making the least exertion and which oblige them to keep abed days and even weeks; the vertigo, the terrible feeling of instability, as if all were about to disappear in an immense abyss; the cephalalgia, mostly frontal,

* W. Skinner, *Bulletin général de thérapeutique*, Paris, July 15, 1886, p. 29.

often temporal, sometimes general; the sensation of heaviness in the head, of constriction of the temples; the feeling of malaise, of indefinable torture; and, lastly the insomnia, which may and often does deprive the patient of all repose during several consecutive days.

The various reflexes (corneal, pupillary, pharyngeal, abdominal, tendinous, and plantar) have often been tested and found normal.

There is still an important symptom which had considerable influence in determining the treatment of seasickness by the new method; this symptom is *myosis*, which is often present in this affection. It is undoubtedly dependent upon the state of the nervous system, and indeed of that of the great sympathetic division of the nervous system. The interpretation of this phenomenon will be found in the third part of this article.

The pupils retain their reflex activity both by the action of light and by the effort of accommodation.

2. The digestive apparatus also presents a great contingent of symptoms, and these are the most striking to non-medical observers.* Mentioned in the order of the anatomical regions in which they occur, there is, first, coldness and pallor of the lips, ptalism, and the foul taste sometimes perceived in the mouth. The tongue, in uncomplicated seasickness, is always uncoated, rosy or pale, humid, and generally in a normal state.

Anorexia is one of the earliest symptoms that announce the approach of seasickness. Nausea follows closely; then appears the vomiting, which at first sight seems to be the principal and the most characteristic symptom of this affection. This last may be absent in light cases, but it is very rarely lacking in cases of average or of great intensity. At first alimentary, the vomiting next becomes mucous, then bilious. Hæmatemesis is not present in simple cases.

The act of vomiting is not without utility. It is not, however, in purging the body of certain matter supposedly noxious that its usefulness lies, but, in fact, by the *effort* which precedes and accompanies it, and which has for one of its effects the forcing of a certain quantity of blood to the brain and to the medulla, which stand in such need of it. In other terms, this effort momentarily activates the encephalic circulation, and the period of calm and of relative euphoria which follows may be due solely to this reflex act. Emesis may thus be regarded as an attempt on the part of Nature to re-establish the normal state of the organism.

From another point of view emesis is a cause of exhaustion of the patient's strength, not only by the violent muscular contractions, often repeated, which are necessary for its accomplishment, but also by the loss, often considerable, of nutritive albuminoid or mineral substances which are rejected by the mouth.

There is sometimes pain in the epigastric region produced by the numerous efforts at vomiting, and in some

cases the patients exhibit a veritable gastralgia due largely to abstinence from alimentation, but otherwise this phenomenon does not enter into the symptomatology of seasickness.

What is more important than the preceding, and more constant, is constipation, which, it is believed, never is lacking in uncomplicated cases. This may be more or less pronounced, but it constantly exists in simple cases. Its cause resides certainly in a paresis of the muscular tunic of the intestine. This point will be treated of again when the rôle of the ganglionic nervous system in the production of naupathia is dwelt upon in another part of this treatise.

The liver and the spleen present nothing abnormal; in any case, the latter does not acquire a volume sufficient to render it perceptible by palpation. The abdomen remains normal in its form, its consistence, and its sonority.

3. The physician obtains from the *circulatory apparatus* quite a series of signs and important symptoms, which furnish valuable indications for therapeutic measures. They indicate, in general, a *slowing of the circulation and a lowering of the arterial blood pressure*. The cardiac pulsations are weaker than the normal. As to their number, it follows from my observations that in men there is almost always diminution or bradycardia—several times the number was 57, 51, 48, and even 45 per minute (Case VIII); that in women the number is increased (tachycardia) as often as diminished, and not infrequently the number remains normal (maximum observed, 114 per minute, *without fever*; minimum, 51); and that in children it is almost always, if not always, increased (maximum 120, without fever).

The pulse constantly presents a *diminished resistance*, a greater depressibility than the normal. This is manifest in each patient in comparing his pulse during the attack of seasickness with that which he has when he is cured. The pulse is small, feeble, easily compressed, often perceptible with difficulty. It is regular and equal, without change of rhythm.

The capillary circulation appears retarded. The extremities of the patient, also the ears, the nose, the lips, are cold and clammy. The cutaneous circulation is so diminished that the skin presents several phenomena useful in establishing the diagnosis, and which will be examined in a moment.

In regard to the constitution of the blood in seasickness, there has been no opportunity to examine it.

4. The striated muscles subject to volition offer nothing in particular; the heart has already been mentioned.

The *unstriated muscles*, on the contrary, are evidently parietic, as was said in speaking of constipation. To such a state of paresis may be attributed the inertia of the intestine, that of the radiating fibers of the iris in myosis, and there may also exist a paresis of the muscular tunic of the blood-vessels, which would explain, in a certain measure, the lowering of the blood pressure.

5. The *skin* is extremely pale, cold, and often moist. Immediately before emesis occurs, synchronous with the nausea which precedes it, the skin receives a renewed wave of perspiration, which renders it still cooler and moister.

* Many of these symptoms might with reason be referred to the nervous system, but they will be named here as if they depended principally upon the organs with which they seem to be the more closely connected.

The natural color of the skin may disappear to such an extent that the patient has almost the aspect of a cadaver—an aspect sometimes increased by a slight greenish-yellow tint in very severe cases. This peculiar condition of the skin, the incessant vomiting, and the great prostration manifested by the patient would easily make a person unaccustomed to the sight believe that the sufferer before him was in danger of dying, so violent and so threatening are the divers symptoms. This state of the skin (pallor, abnormal tint, coldness, moisture) depends on the defective circulation in this organ, causing cutaneous anæmia.

6. The *urine* is remarkably diminished in quantity (oliguria). Hardly does the patient feel the need of evacuating his bladder once during the twenty-four hours, and even when he does so, it is only a hundred, two hundred, or possibly three hundred cubic centimetres that he passes, instead of the normal fifteen hundred. The quantity is so small that it is with difficulty that the physician can procure enough for analysis. Nevertheless, we have been able to get enough from several patients to make analyses thereof. In their cases the urine was clear, acid, amber-colored; devoid of sediment, free from albuminoids (albumin, peptone, or others) and from glucose. More research in this direction, however, is greatly to be desired.

7. Naupathia is an apyretic affection. The central temperature of the patient in simple cases does not rise above the normal, and it varies only within narrow limits. The maximum I have observed was 37.7°C .; rectal temperature (the minimum), 37.3° .

The general aspect of a person suffering from seasickness rather severely is well fitted to inspire pity in one observing him. The extreme decoloration of the countenance; the indifference of the patient to all that transpires about him, which is sometimes so great, it is said, that women lose the feeling of shame and modesty, and parents the parental love for their children; the sufferer's apathy; the distress depicted in his face and his attitudes; the moaning that escapes him; the lack of sleep and of all restorative repose; the constant nausea and emesis—all these phenomena witness to the existence of a really insupportable state of body and mind, which claims with a loud voice the relief obtainable from men of our profession.

II. DIAGNOSIS.—The diagnosis of this affection is so easy, in general, that any one, no matter who, is able to make it. There is no difficulty, except in certain cases which will be indicated below, or in those in which naupathia is complicated by the synchronous presence of another disease.* In certain affections of the digestive tract, for instance, vomiting occurs as a symptom, and it is not always easy to determine whether it is due to the local disease (gastritis, indigestion, helminthiasis, etc.), or to a general affection (seasickness). But if, with symptoms of a disease of the digestive tract, there is abnormal salivation, notable diminution of the frequency and abundance of urination, unusual paleness, coolness, and moistness of the skin, atresia of the pupils with conservation of their reflexes from

the action of light and of accommodation, absence of fever and presence of vertigo and of peculiar distress and prostration, then it is certain that the case is one of seasickness.

Shall we go farther and make a differential diagnosis between naupathia and another disease more frequent in children and in adolescents—quite rare among passengers on the sea, it is true, but which might, nevertheless, be observed there? This disease, extremely grave, presents several symptoms in common with naupathia. It is a disease characterized by an onset often rapid, especially in warm climates, by intense cephalalgia, by extreme prostration, by repeated emesis, and which is none other than cerebral meningitis. These symptoms, with pallor of the skin, which is sometimes observable in meningitis, are present in both affections, and when the latter is caused by insolation (which happens in the tropics), occurring during the first hours of a voyage, for instance, it is extremely important to be able to make the diagnosis with promptness and precision.

The signs which help to distinguish meningitis from seasickness of extreme or even medium intensity are relative to the cephalalgia, to the pupils, to the salivary secretion, to the vomiting, to the vertigo, to the peculiar distress and torture of the seasick, and to the temperature.

The cephalalgia of generalized cerebral meningitis is diffuse, and felt in all the regions of the encephalon at the same time, while in naupathia it is oftener limited to one of the anterior regions of the head (frontal, supra-orbital, or temporal regions). It is severer in meningitis, and the complaint it provokes from the patient is very different from that arising from the headache of the seasick.

The pupils are often in mydriasis in meningitis; they present a diminution or an abolition of their reflex contractility, and they are often unequally dilated. In seasickness, however, they are predominantly atresic and their reflexes are intact. Moreover, there is no photophobia in the latter.

The salivary secretion is little influenced in the former case; on the contrary, it is habitually increased in naupathia.

Emesis is less frequent, less noisy, less violent, and less frequently preceded by nausea in meningitis than in the other affection.

The temperature of the body is abnormally elevated in the first; it remains normal or else falls a few tenths of a degree in the second.

Finally, one might add that the pallor of the face in meningitis often yields place suddenly to flushing, and that without appreciable cause, while in naupathia scarcely does the paleness, even after vomiting, merge into a trace of color for a few moments.

Upon seas bordering on unhealthful countries where certain diseases reign endemically or epidemically, it is possible that cholera might be mistaken at first for seasickness. The pallor and moisture of the skin, the vomiting, the prostration, the anxiety of the patient, and the suddenness of the onset certainly render the two affections comparable to a certain extent in regard to their symptomatology. But in naupathia the diarrhoea, so frequent if not

* It is understood, of course, that the patient whose case is to be diagnosed is in a situation favorable to the development of naupathia—i. e., upon a boat, in a railway train, a carriage, or the like.

constant in cholera, is absent, as well as the thirst, the injection of the conjunctiva, the cadaveric aspect of the face, or else its typhoid appearance, and the notable hypothermia, also the hyperthermia, both of which may occur in cholera and are easily determined. It is unnecessary to longer insist on the elements of diagnosis of these two affections.

Certain *poisons* produce a symptom-complexus that can be confounded with seasickness. It is those forms of poisoning which include among their symptoms vomiting, prostration, pallor of the face, and distressing pain or anxiety that resemble the latter affection. But in cases of poisoning producing vomiting there is habitually diarrhoea also, which latter is foreign to naupathia. Again, the study of the temperature, of the seat and character of the pain, of the ejecta, and of the concomitant circumstances, will furnish a sufficient number of elements for the diagnosis of these two classes of affections.

Finally, in all *fevers* with sudden onset and having emesis among their prominent symptoms, the simple use of the thermometer will afford all necessary information for differential diagnosis.

III. The Prognosis of naupathia uncomplicated by other morbid states ought, in our opinion, to be always favorable as to the life of the patient. Some authors have maintained the contrary, but we have not found in the literature of the subject the relation of a single simple case having terminated in death. It is true that a person may have seasickness so severely and so long that his nutrition may suffer to a very great extent, as indeed one of my cases (XIII) shows. De Rochas* relates that a nun who sailed for Australia did not arrive there till the end of six months, and she was seasick during the whole time. She could retain nothing upon her stomach, and her emaciation was so great that on the day of debarkation she was reduced almost to a skeleton.

Similar cases have been observed when voyages were made exclusively by means of sailing vessels and which have consequently lasted a long time. But the sea has not been (to our knowledge at least) the cause of grave or fatal accidents in persons otherwise healthy. Such accidents as the production of a hernia, a cerebral hæmorrhage, or the rupture of an aneurysm, which might be occasioned by the effort of vomiting, should be laid to the account of an anterior abnormal or pathological state. As to miscarriage or premature parturition, we know of no authentic case in which it was caused by seasickness. Even in pregnant women almost at term, delivery seems not to occur before the end of the normal duration of gestation.

(To be continued.)

The Prize of the Alumni Association of the College of Physicians and Surgeons.—Our readers' attention is called to an advertisement of this prize which will be found in this issue of the *Journal*. The prize is open to all alumni of the college. It is to be hoped that it will not fail to be awarded because of the fact that no essay deemed worthy of it is submitted.

* *Dict. encycl. des sciences méd.*, art. Mal de mer.

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THE ANNUAL REPORT OF THE SURGEON GENERAL OF
THE ARMY.

The promptitude with which the surgeon general of the army prepares his annual report seems to be equalled by that of its printing and distribution, for within a few months after the termination of the fiscal year the public is in possession of the achievements of that year. The total expenses were \$104,538.80, although an additional expenditure of some \$65,000 will be made for supplies ordered previous to July 1, 1893, thus making a total of about \$170,000. This sum does not include the salaries of the medical officers or the money expended for the services of contract surgeons.

Over a thousand specimens were added to the museum, and more than eight thousand books and pamphlets were placed in the library.

Of forty-three candidates examined for admission into the medical corps, twenty were rejected for professional incapacity, seven were rejected for physical disability, four withdrew after partial examination, and twelve were found qualified. These figures are of considerable interest because they indicate either that a better class of men are taking the government examination or that the medical colleges are giving more thorough instruction, for the percentage of candidates that pass is higher than in former years.

General Sternberg says of the Army Medical School: "Although there is no need to teach medicine or surgery to well-educated graduates of our medical colleges, there are certain duties pertaining to the position of an army medical officer for which the college course of these young men has not prepared them; and certain of these duties are more important than the clinical treatment of individual cases of disease and injury, because the efficiency of a command, of an army even, may depend upon their proper performance. . . . The army medical officer is the health officer of his command; but the young graduate seldom is equipped with the knowledge or experience necessary to efficient action in this position. The course at the Army Medical School will prepare him to cope with the questions of practical sanitation that will be presented to him at every turn in his military career."

There is an account of the present status of the hospital corps and of its requirements that will be of interest to the many medical officers of the national guard.

The admission rate to the sick list was 1,270:42 in a thousand of strength, and is, excepting that for 1887, the lowest recorded admission rate. The per-mille of the non-effective was 39.6, a lower rate than that of the army of Italy, Great Britain, or Austria-Hungary.

The surgeon general recommends the introduction of electric lights into the Army and Navy General Hospital at Hot Springs; the use of white duck as the most suitable apparel for men of the hospital corps while occupied in ward duty; the reference of all plans for the construction or alteration of buildings or for sanitary improvements at military posts to a board of officers in which the medical department shall be represented; the disuse of casemates as living and sleeping rooms; the provision of quarters for a limited number of married enlisted men; the prohibition of the practice of flushing barrack floors so as to wash them; the construction of garbage crematories at permanent posts; and the establishment of post laundries.

There are the usual statistics regarding the military departments and the separate posts and the tabulation of diseases and injuries treated, and the volume is worthy of the high reputation of our army medical corps.

THE TREATMENT OF INGROWING TOE-NAIL.

In the November number of the *Revue de chirurgie* there is an article on ingrowing toe-nail by M. E. Nicaise. In regard to the treatment of this condition, the author says that it has been complicated by the number of procedures that have been devised. While he does not set out to enumerate them completely, he classifies them in a way to render their study easier. There are four methods of treatment. The first is simply a matter of dressing. The second comprises operations practiced on the nail alone. The third embraces operations on the soft parts. The fourth consists of operations involving both the nail and the soft parts.

As regards the dressings that have been proposed, they are innumerable. They have for their object to restrict the contact of the edge of the nail with the groove in the flesh surrounding it, and to treat ulceration in a desiccative manner; bits of charpie dipped in some astringent or slightly caustic substance, which may be varied *ad infinitum*, such as alum, tannin, tincture of iodine, iron perchloride, and silver nitrate, which are slipped under the nail. It may be assumed that the raw surface caused by the ingrowing of the nail is invaded by microbes, which, finding there anatomical elements that have ceased to be normal, fall to fulfilling one of the functions attributed to them by Nature—that of reducing the tissues into simpler elements. Antiseptic topical applications arrest the invading action of the microbes and heal the wound. At the same time that these topical applications are made to the ulcerated surface, it is sometimes an object to reduce the lateral swelling and replace the nail. Guy de Chauliac advised the use of a sheet of lead, which would at the same time raise the edge of the nail and compress the flesh; he also employed caustics, and, in order to allow of walking, covered the toe with a sort of cap of copper or silver, perforated "in order to allow the toe to breathe," he said. Bonnet used a dressing of prepared sponge, which pressed upon the pulp and caused it to retreat gradually from the nail; but this dressing was diffi-

cult to keep in place, and it required that the patient should be at rest. Finally, various sorts of hooks and plates have been devised for raising the nail, but everything of this kind is inadequate in the adolescent—for a relapse is to be apprehended. When the second toe has deviated above or beneath the great toe, the first indication is to restore it to its natural position.

The operations practiced on the nail alone are for the purpose of diminishing its transverse dimensions. With the idea that ingrowing toe-nail was due to too great a breadth of the nail, ablation of its median portion has been practiced, with approximation of the two remaining lateral portions, or ablation simply of the ingrowing portion and of half the nail, or finally of the whole nail. Not one of these procedures is founded upon a knowledge of the anatomy and physiology of the nail, consequently they do not answer the purpose. The same may be said of operations upon the soft parts having for their purpose the destruction of the overlying flesh; they are palliative operations and do not do away with the possibility of relapse, for the matrix is not destroyed. Nevertheless, there is a very ingenious procedure which involves only the soft parts and may be efficacious when the primary spatula form exists, namely, M. Guyon's: A parallelopipedon having the same length as the ungual border is cut out from the pulp; when the lips of the wound are brought together the prominence becomes smaller and recedes from the border of the nail. Sometimes a relapse follows this procedure.

In the fourth class of procedures a radical cure is aimed at; in order to obtain it, caustics, such as the red-hot iron, caustic potash, etc., are employed, but the best way is to resort to the knife. Baudens inserted the bistoury at the origin of the groove for the ingrowing nail and brought it out in front in such a way as to remove at one cut the matrix, the overlying soft tissue, and the incarnate part of the nail. By this method one is not sure of removing the matrix, so it is better to resort to the following means: In Follin's operation a transverse incision is made behind the nail, a longitudinal incision in the swollen soft tissue, and an incision parallel to the latter through the nail itself, in such a way as to remove the parallelopipedon comprising the matrix, the redundant soft tissue, and the incarnate edge of the nail; then the subungual derma corresponding to the portion of nail removed is excised. Gosselin employed a procedure analogous to Follin's, except that he removed the entire nail, a practice that is unnecessary and one that prolongs the treatment. In Théophile Anger's procedure a flap of the redundant soft tissue is made by transfixion, the bistoury being inserted posteriorly and brought out anteriorly, by which at one cut the same object is effected as in Baudens's procedure.

After having employed several methods, the author has definitively adopted the following, which is substantially Follin's: Local anesthesia is necessary, and that is effected by different measures, such as the application of a mixture of ice and salt; at present tubes filled with ethyl chloride are made use of, and their employment is very convenient. The foot is washed,

lathered with soap, and bathed with a strong solution of carbolic acid, the space between the toes, the toes themselves, and the nails being particularly cleansed; the toe is forced outward by its root between two fingers, and then an India-rubber tube is wound around the root. With narrow-pointed scissors about a quarter of the nail on the incarnate border is separated; with a strong forceps the portion of the nail thus separated is pulled out; then with the bistoury a transverse incision is made behind the matrix about five millimetres from the nail. This incision corresponds to the portion of the nail that has been removed, and it includes the whole thickness of the derma. The matrix is then removed to a point in front of the lunula, and then the ulcerated base of the groove from the border of the nail. It is necessary to take great care in removing the fungosities of the groove, in order to prevent subsequent suppuration. As for the unguinal derma situated in front of the lunula, it is sufficient to abrade it. There is thus formed an elongated raw surface, and the elevated soft tissue at the side presents a refreshed surface; this tissue is supple enough to be compressed into the place which was occupied by the portion of the nail that has been removed. Then the rubber tube that encircled the root of the toe is taken off, and a sponge wet with a strong solution of carbolic acid is held upon the wound for a few minutes; after that a strip of iodoform gauze about a third of an inch wide is so applied as to hold the projecting soft tissue down upon the wound by gentle compression; the toe is then enveloped in iodoform gauze and the other toes are separated from each other by absorbent cotton, which also covers the whole foot. Finally the dressing is held in place by a tarlatan band reaching as high as the instep. This dressing should be changed on the fourth or fifth day and once or twice after that, the patient being kept recumbent.

MINOR PARAGRAPHS.

ARSENIC AS A CAUSE OF MULTIPLE NEURITIS.

THE *Lancet* for November 18th contains a report of a post-graduate lecture on Some Symptoms and Varieties of Multiple Neuritis by Dr. Thomas Buzzard, physician to the National Hospital for Paralytics and Epileptics, London. The lecturer reminded his hearers that alcohol, diphtheria, septicæmia, gout, rheumatism, and diabetes were perhaps the most frequent causes of multiple neuritis, but among the exceptional causes was the administration of arsenic. A short time before he had seen a patient, the subject of congenital chorea, who had been treated with increasing doses of arsenic for two months. The largest dose, the man said, had been seventeen minims of Fowler's solution three times a day. While he was under the influence of this treatment his hands and feet became somewhat inflamed, and the soles of his feet, and especially the toes, grew red and tender. He complained of a "prickling, pins-and-needle" sensation. The cutaneous sensibility was impaired and the skin of the hands peeled. "The knee-jerk was abolished on each side. His feet felt like clogs, so that he could walk but little. Six or eight months afterward the knee-jerks were present, but "required re-enforcement." The cutaneous sensibility was still impaired in the hands. His fingers were clumsy and touches upon them gave rise to prickling feelings. He

was, however, gradually recovering. Alcohol and syphilis could be excluded as causes of this polyneuritis, which had developed while the patient was taking increasing doses of arsenic and which had gradually subsided when the administration of that drug was discontinued. Such a case represented, as it were, the artificial production of multiple neuritis, and might be usefully remembered, not only because it epitomized the symptoms of multiple neuritis, but might serve as a warning against a certain danger belonging to the employment of arsenic which was sometimes not considered.

PEANUTS AS AN ARTICLE OF FOOD.

In the *Berliner klinische Wochenschrift* (cited in the *Centralblatt für klinische Medizin*) Dr. P. Fürbringer treats of the peanut as an article of food rich in albumin, of which it contains forty-seven per cent., together with nineteen per cent. of fat and non-nitrogenous extractive matters. He recommends the use of roasted peanuts in the form of soup or mush. On account of their cheapness, peanuts are recommended as a popular article of food, especially in poorhouses and the like; moreover, they are recommended as an article of food for the corpulent, for diabetics, and for the subjects of kidney disease, in the last-mentioned of whom foods rich in animal albumin are to be avoided.

SOME USES OF SODIUM SALICYLATE.

In an article on this subject published in a recent number of the *Union médicale*, Dr. West is credited with recommending the use of the following formula in the treatment of amygdalitis: Sodium bicarbonate, one and a quarter drachms; glycerin, one ounce; peppermint water, three ounces. Of this a tablespoonful is to be taken every three or four hours. In the same article the following formula is mentioned as having been advised in stubborn cases of cold in the head: Sodium salicylate and syrup of orange peel, each, half an ounce; peppermint water, three ounces. A dessertspoonful to be taken every three or four hours until ringing in the ears is produced.

THE HARVARD MEDICAL SCHOOL.

The position of dean of this school having been resigned by Dr. H. P. Bowditch, it is said to have been offered to Dr. William M. Richardson, professor of obstetrics. Among the subjects for the evening lectures is the anatomy and surgery of the gall bladder, by Professor Maurice H. Richardson.

ITEMS, ETC.

Pulmonary Consumption and the City Board of Health.

—On the 28th of November Dr. Hermann M. Biggs, the board's chief inspector in pathology, sent the following communication to the Hon. Charles G. Wilson, the president of the board:

The most common and fatal disease which prevails in New York is both contagious and preventable. In 1892 more than six thousand deaths were reported to the New York City Health Department as due to tuberculosis. While this condition of affairs and its great significance has long been recognized by the board of health, owing to various considerations well known to those familiar with tuberculosis, this disease has not up to this time come under the official sanitary surveillance of the department.

In 1889 the board of health requested its pathologists to formulate a brief statement regarding the contagiousness of tuberculosis and the best means for its restriction. In compliance with this request a report on the nature and prevention of tuberculosis was made. The chief purpose of the board then

was the dissemination of the knowledge of the contagiousness of tuberculosis and the education of the people as to the communicable and preventable character of this disease. The report of the pathologists and circulars based upon it, detailing measures of prevention, were then widely published and circulated by the department.

In the *Annual Report of the New York City Health Department* for 1892 you have presented an analysis of the mortality tables of pulmonary diseases, showing the distribution, the ratio of increase and decrease in wards, relation to density of population, etc., of pneumonia, tuberculosis, and bronchitis, which has brought out many important facts regarding the spread of these diseases and especially of tuberculosis, and afforded many suggestions as to their sanitary surveillance and investigation.

The time, it seems to me, has now arrived when it becomes the duty of all sanitary authorities to assume a more aggressive attitude toward this the most widely prevalent and fatal disease to which the human race is subject, and I desire to present to the board for its consideration certain suggestions as to definite means which should at once be taken to prevent and restrict tuberculosis.

It may not be amiss, in order to bring out more forcibly the immediate necessity of such a course, to recount some of the known and now generally accepted facts regarding the nature of this disease. The disease known as tuberculosis may affect any organ or tissue of the body. When it affects the lungs it is called pulmonary tuberculosis, or consumption. In this form it causes about one fourth of all deaths occurring in the human being during adult life, and more than one half of the entire adult population at some time in life acquire it. It has been proved beyond a doubt that a living germ called the tubercle bacillus is the cause and the only cause of tuberculosis. When these germs find their way into the body they may multiply there, if favorable conditions for their growth exist, and produce small new growths or nodules (tubercles) which tend to soften. The discharges from these softened tubercles containing the living germs are thrown off from the body. In pulmonary tuberculosis the expectoration contains the germs, often in enormous numbers. It has been shown that many millions of tubercle bacilli may be discharged, under certain conditions, in the course of twenty-four hours by one person suffering from tuberculosis. The germs thus thrown off do not grow outside the living human or animal body except under artificial conditions, but they may retain their vitality and virulence for long periods, even when thoroughly dried. As tuberculosis can only result from the action of these germs, it follows from what has been said that when the disease is acquired it must result from receiving into the body the living germs that have come from some other human being or animal affected with the disease; in other words, it can not occur except by *direct communication* from some other individual or animal suffering from tuberculosis.

While the meat and milk of tubercular cattle may be important sources of danger, yet the disease is acquired, as a rule, through its communication directly from man to man. The expectoration of tubercular persons frequently lodges in places where it afterward dries, as on handkerchiefs, clothing, carpets, floors, the streets, and so on. After drying, it is very apt, in one way or another, to become pulverized and float in the air as dust. Pulmonary tuberculosis or consumption (the most common form of the disease) is usually produced by breathing air in which the living germs are suspended as dust. It has been shown experimentally that dust collected from the most varied points in hospital wards, asylums, prisons, hotel bedrooms, private houses, etc., where consumptive patients have lived, is capable of producing the disease. Such dust may retain for weeks and even for months its power of causing the

disease, and persons inhaling the air in which this dust is suspended breathe in the living germs. It should, however, be distinctly understood that the breath of tubercular patients and the moist sputum received in proper cups are not elements of danger, but only the dried and pulverized sputum. The breath and moist sputum are free from danger because the germs are not dislodged from moist surfaces by currents of air. If all discharges were destroyed at the time of their exit, by far the greatest danger of communication from man to man would be removed.

It is a well-known fact that some persons, and especially the members of some families, are particularly liable to tuberculosis. So marked and so frequent is the development of the disease in certain families that the affection has long been considered hereditary. We now know that the disease itself is very rarely hereditary, but that there is inherited a liability to the disease which renders the individual an easier prey to the living germs when once they have gained an entrance.

Where the parents are affected with tuberculosis the children, from the earliest moments of life, are exposed to the disease under the most favorable conditions for its transmission, for not only is the dust of the house likely to contain the bacilli, but the relations also between parents and children, especially between mother and child, are of that close and intimate nature especially favorable for transmission by direct contact. The frequent occurrence of several cases of pulmonary tuberculosis in a family is, then, not to be explained on the supposition that the disease itself has been inherited, but that it has been produced after birth by transmission directly from some other individual.

It follows from what has been said that tuberculosis is a communicable—that is, a contagious-germ—disease, and is distinctly preventable. The means which are most certain to prevent its spread from one individual to another are those of scrupulous cleanliness regarding the sputum. These means are largely within the control of the affected individual. It should be constantly kept in mind that it is the sputum and the sputum alone which is commonly the important agent in its transmission.

It is furthermore to be remembered that consumption is not always, or even generally, as was formerly supposed, a fatal disease, but that in a very large proportion of cases, if recognized early, it is a distinctly curable affection. An individual who is well on the road to recovery may, if he does not with the greatest care destroy his sputum, diminish by self-inoculation his chances of recovery.

The following facts should be especially emphasized:

First, tuberculosis is a contagious disease and is distinctly preventable.

Second, it is acquired by the direct transmission of the tubercle bacilli from the sick to the well, usually by means of the dried and pulverized sputum floating as dust in the air.

Third, it can be largely prevented by simple and easily applied measures of cleanliness and disinfection.

The time has arrived when the knowledge concerning the causation, extension, and prevention of pulmonary tuberculosis is sufficiently definite to make possible the adoption of important practical measures for its restriction, yet these measures must at present differ in many respects from the more summary proceedings justified in other more readily transmitted contagious diseases, for it is to be remembered that while tuberculosis is always the result of infection, yet it is far less readily communicated than some contagious diseases, and with proper precautions victims of this disease may, without endangering others, pursue their usual vocations.

I would therefore recommend, first, that there be systematic

ally disseminated among the people, by means of circulars, publications, etc., the knowledge that every tubercular person may be a source of actual danger to his associates, and his own chances of recovery be diminished, if the discharges from the lungs are not immediately destroyed or rendered harmless.

Second, that all public institutions, such as asylums, homes, hospitals, dispensaries, etc., be required to transmit to the board of health the names and addresses of all persons suffering from pulmonary tuberculosis within seven days of the time when such persons first come under observation.

Third, that special inspectors be assigned to duty for the investigation of this disease, and whenever the department has become aware of the existence of families or premises where tuberculosis exists or has recently existed (as in case of death or removal) it shall be the duty of these inspectors to visit such premises and deliver proper circulars and give suitable information to the persons residing there and take such specific measures of disinfection as are required in each case.

Fourth, that the board urge upon hospital authorities the importance of separation, so far as possible, in the hospitals of this city of persons suffering from pulmonary tuberculosis from those affected with other diseases, and urge that proper wards be set apart for the exclusive treatment of this disease.

Fifth, that the Department of Charities and Correction of this city be requested to set apart one of the hospitals under its charge, to be known as "The Consumptive Hospital," to be used for the exclusive treatment of this disease, and that, so far as practicable, all inmates of the institutions under its care suffering from tuberculosis be transferred to this hospital.

Sixth, that the Health Department undertake the bacteriological examination of the sputum for diagnosis in every case of pulmonary disease of doubtful character in hospitals or private dwellings or tenement houses where the physician in attendance desires that this should be done—this procedure to be carried out with a view of obtaining definite knowledge upon which the proper sanitary surveillance of those suffering from tuberculosis can be based.

Seventh, that all physicians practicing their profession in this city be requested to notify this board of all cases of pulmonary tuberculosis coming under their professional care.

For the proper performance of the preliminary work as detailed above, a special corps of medical inspectors and disinfectors should be provided, whose duties should be entirely confined to work connected with the investigation of tuberculosis and the carrying out of the means to be taken for its prevention.

Finally, in urging the adoption of this report, or some similar one, I would add that there is, it seems to me, a widespread feeling among the medical profession and the laity that some efficient means should be taken at once to prevent the great and unnecessary loss of human life caused by consumption, and it is imperative that sanitary authorities adopt such measures as science has shown to be practicable and efficient in controlling the ravages of this disease.

It is my belief that the New York City Board of Health, which has so often achieved notable success in the management and control of other contagious diseases, should take the lead in this matter and adopt measures to meet this new and urgent demand upon its resources.

The New York Academy of Medicine.—The special order for the meeting of Thursday evening, the 7th inst., was a paper by Dr. J. B. Murphy, of Chicago, on various subjects pertaining to abdominal surgery.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 12th inst., Dr. Robert W. Taylor will read a paper on Some Unusual New Growths of the Vulva,

and Dr. E. Fuller will read one entitled The Requirements of a Suspensory Bandage, including Remarks on its Uses and Abuses.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 14th inst., Dr. W. Hallock Park will read a paper entitled Bacteriology: the Present Status of our Knowledge, and Dr. John W. Brannan will read one on The Extent to which the State can Control Infectious Diseases.

At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 18th inst., Dr. E. S. Peck will read a paper on Operative Interference in Detachment of the Retina, and Dr. Frank Van Fleet will read one on Astigmatism and the Ophthalmometer.

The City (Charity) Hospital.—On Wednesday evening, the 6th inst., the medical board of the hospital gave a dinner at the Savoy Hotel in honor of Dr. Robert W. Taylor, who recently resigned from the board. Dr. Thomas H. Burchard presided.

The Society of Medical Jurisprudence.—At the next meeting, on Monday evening, the 11th inst., Mr. W. A. Short, of the New York bar, will read a paper on Suicide and Evolution.

The Shelby County, Indiana, Medical Society.—At the next meeting, on December 11th, Dr. E. W. Leech will read a paper on Diseases of the Rectum, and Dr. D. F. Randolph will read one on The Hereditary Tendency of Diseases.

The Medical Society of the County of Albany, N. Y.—At the next meeting, on Wednesday, the 13th inst., Dr. F. O. Curtis will read a paper on Certain Points in regard to Eczema, and Dr. H. Hun will read one on The Treatment of Myxædema by Feeding with the Thyroid Gland.

The North Carolina Board of Health.—The board's *Bulletin* for November announces that Dr. John Whitehead, of Salisbury, has been elected a member of that body, in place of Dr. Hodges, formerly of Wilmington, who has left the State.

A Nutritive Enema.—*L'Union médicale* credits Bernheim with the following formula: Milk, ten ounces; the yolks of two eggs; old rum, half an ounce.

A Statue of Ricord, says *L'Union médicale*, has been erected in front of the Hôpital du Midi on a pedestal that has already been some time in place.

Changes of Address.—Dr. Charles N. Dixon Jones, to No. 106 West One-hundred-and-twenty-eighth Street; Dr. Charles I. Pardee, to No. 6 East Forty-third Street; Dr. Albert C. Stanard, to No. 24 West Twenty-fifth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 26 to December 2, 1893:*

STARK, ALEXANDER N., First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Clark, Texas, and will report in person to the commanding officer, Fort Sam Houston, Texas, for duty at that post.

Society Meetings for the Coming Week:

MONDAY, December 11th: New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society, New York (private); Society of Medical Jurisprudence, New York; Boston Society for Medical Improvement; Gynaecological Society of Boston; Norwalk, Conn., Medical Society (private); Shelby County, Indiana, Medical Society; Burlington, Vt., Medical and Surgical Club; Baltimore Medical Association.

TUESDAY, December 12th: New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Chemung (quarterly)—Elmira, Oswego (semi-annual)—Oswego, Rensselaer, and Ulster (quarterly), N. Y.; Newark, N. J., and Trenton, N. J. (private), Medical Associations; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Northwestern Medical Society of Philadelphia; Baltimore Gynecological and Obstetrical Society; Practitioners' Club, Richmond, Ky.; Morris, N. J., County Medical Society (semi-annual).

WEDNESDAY, December 13th: New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private); Medical Societies of the Counties of Albany, Cayuga (semi-annual), Cortlandt (semi-annual), and Montgomery, N. Y.; Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society.

THURSDAY, December 14th: New York Academy of Medicine (Section in Pædiatrics); Brooklyn Pathological Society; New York Laryngological Society (annual); Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia; Northwestern Ohio Medical Association (first day—Toledo).

FRIDAY, December 15th: New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynecological Society; Northwestern Ohio Medical Association (second day).

SATURDAY, December 16th: Clinical Society of the New York Post-graduate Medical School and Hospital.

Proceedings of Societies.

SOCIETY OF THE ALUMNI OF BELLEVUE HOSPITAL.

Meeting of November 1, 1893.

The President, Dr. FREDERICK H. WIGGIN, in the Chair.

Epithelioma of the Tongue.—Dr. PARKER SYMS presented a patient showing the result of operation for this condition. The patient was a man, sixty-eight years of age, who had first noticed a sore on the side of the tongue about six years before which he described as being hard and ulcerated. It had healed several times after his desisting from using cigars. It had, however, remained unhealed from the fall of 1891 until he was first seen by the speaker at the Cancer Hospital early in November, 1892. At this time there had been a hard ulcer about half an inch in diameter, at the left side of the base of the tongue, which had had all the appearances of carcinoma, and the microscope had confirmed this diagnosis. On November 16, 1892, half of the tongue had been excised by Whitehead's method. There had been no recurrence so far, so that the case illustrated very well that when such a growth was situated well forward on the tongue it could be thoroughly removed by this lesser operation. Although this was the first time he had performed this operation, he had found no special difficulty in ligating the vessels and carrying out the various steps of the operation, and had found it much easier than he had been led to believe it. At present there was a small white spot on the cicatrix which at first glance seemed suspicious, but closer examination showed it to be only an abrasion from contact with a sharp tooth.

Successful Case of Cœliotomy for Traumatic Peritonitis; Enterectomy with Circular Enterorrhaphy (Mauless's Method); Exhibition of the Patient and Specimen, and Demonstration of the Method.—The President read a paper with this title. (To be published.)

Dr. CHARLES PHELPS said that he could only speak in approbation of the paper, for few surgical papers presented more of value and novelty than this one. So far as he knew, there were only two recorded cases, the one just reported being the second one of intestinal resection in which Mauless's method had been adopted in New York or its vicinity. The first operation had been done by another member of this society, Dr. Hartley. The cumbersome and tedious methods hitherto employed had rendered the usual operation of intestinal resection very uncertain in its results; hence an operation which could be performed with so much rapidity and ease must be regarded as an exceedingly agreeable surgical revelation. Personally, he thought that no other device was likely to supersede this new operation. With this method at his disposal, he would now be willing to operate on many cases where formerly he would have hesitated or refused to operate.

The use of peroxide of hydrogen in the peritoneal cavity and leaving this cavity filled with hot salt solution he believed to be new points in the technique. The knowledge that one could successfully use the peroxide of hydrogen in this way made the prospect of success much better, and the leaving of the hot solution he thought, from theoretical considerations, must prove an effectual measure for the treatment of shock. Intestinal resection was a much more facile and a much more promising operation than it had been heretofore.

Dr. FREDERICK S. DENNIS said that he had been much interested in the paper and in the case, which he had seen before from time to time. So far as he knew, there had been only one case besides the author's in which a diagnosis of rupture of the gut had been made, and laparotomy with end-to-end suture of the gut after resection performed; hence Dr. Wiggins should be warmly congratulated on the success of so brilliant an operation.

There was another point of interest in the case—namely, that the patient had come to this city with a large ulcerating tumor at the verge of the anus which had looked very much like an epithelioma, but, on examination, had been found to be a condyloma. This the speaker had removed by the application of an ordinary elastic band, a procedure described by the late Dr. Nathan Smith, of Baltimore. The mass had been, without exaggeration, of the size of one's fist, and bleeding, ulcerating, and foul. In less than twenty-four hours after the application of the elastic ligature around the pedicle of this mass it had sloughed off, and had now entirely disappeared, although only five or six days had elapsed since the operation.

Dr. J. W. S. GORLEY thought that Dr. Wiggins should be congratulated upon the success of this case, which was owing, first, to the early surgical interference, and, secondly, to the measures adopted in the after-treatment. With respect to the first, he would say that there was usually too much delay; even in this case the operation might have been performed many hours sooner.

This method of operation, which he had seen Dr. Wiggins demonstrate before, impressed him very favorably. It had been objected that the longitudinal incision of the intestine below was an unnecessary complication; but since such a wound could be so easily closed, and since any flatus would be apt to collect above, the objection did not seem to him to be valid. The absolute peritoneal contact secured by this method of suture seemed likely to render the end-to-end operation safer than even the Murphy button. The latter might become a very dan-

gerous foreign body in the intestine, although it was a very pretty operation, and was even more quickly performed than Maunsell's.

He had been greatly interested in the washing out of the peritoneal cavity with peroxide of hydrogen; he was glad to know that the peritoneal cavity would tolerate this agent so well. It was well borne by connective tissue, and tolerably well by the buccal membrane, even when used in its pure state; but certain other mucous membranes, such as those of the bladder and urethra, did not tolerate it. Such rapid oxidation was produced that the pain was unbearable—worse even than that produced by the use of strong solutions of bichloride of mercury.

The filling of the abdominal cavity with warm salt solution had been resorted to two years ago in this city by Dr. Baldwin in a case of abdominal section for a very large uterine myoma—a tumor at least six inches in diameter and almost globular. The operation had been difficult and tedious, and the patient had been in collapse, so the operator filled the abdominal cavity with as much very hot Thiersch's solution as it would hold. He had looked upon this as a very important factor in the recovery of his patient, and he had thought the large volume of the fluid, as well as its heat, was important.

The author of the paper had also introduced another very important point which could not be too often repeated, and that was that as little time as possible should be lost in the performance of abdominal operations. It was a potent element of success. Every year, every month, almost every week, did his dread of ether increase, especially in connection with the way in which it was given in our large hospitals, such as Bellevue. In private practice among healthy subjects it was perfectly safe. He had had very few deaths from ether, but he could never forget the first case. It had occurred at the time when Dr. Polk was house physician, and, he thought, Dr. Bryant was house surgeon—as far back as 1870. The patient had been brought to the hospital with luxation of the hip. He was a stalwart but drunken fellow. He had first been placed on the table and the usual quantity of ether given. Attempts had been made by several surgeons to reduce the dislocation of the hip, but these had failed. Then some of the medical staff had tried, and had also failed. The man had then been put to bed for two days, and at the end of this time he had again been etherized. The speaker had tried, then the house surgeon had tried, and then Dr. Smith and Dr. Sayre, but all had failed. There had been almost total suppression of urine following this etherization, and two days later the man had died. The autopsy had shown the contracted kidney so commonly found among drunkards. Ever since that time he had been afraid of ether. In private practice he had given as little as possible, sometimes giving chloroform to young subjects, but as far as possible using the nitrous oxide. Many years ago Dr. James R. Wood had used it in an amputation of the thigh, but his apparatus had been cumbersome, and the method had not been generally adopted. In the last few years, in nineteen out of twenty cases, he had used nitrous oxide in preference to ether, on account of the evil effects which many had observed from ether.

Dr. W. R. TOWNSEND said that he had had the pleasure of listening recently to a paper on peroxide of hydrogen as a hæmostatic in cases of epistaxis. The author had found it even better than plugging of the nostrils. In the discussion of this paper several others had spoken of having had good results from it in this direction. In view of this, it might be that peroxide of hydrogen would prove especially useful where there was troublesome oozing in the abdominal or pelvic cavity. Certain experiments which he understood were now being carried on by Professor Thompson, of the University, went to show

that peroxide of hydrogen had a special tendency to produce coagulation of the blood, both in the veins and in the arteries.

Dr. W. EVELYN PORTER said that he was inclined to believe that if the peroxide of hydrogen had been used with only simple water irrigation it would have caused irritation, and even adhesions. On this account, in advocating its use, it would be wise to recommend in every case that the cavity should subsequently be irrigated with normal salt solution. He believed this should be used very generally in abdominal work, not only in acute cases, but in the more chronic ones, especially those found in women.

He thought that, in addition to Maunsell's method, the use of a single row of sutures, either continuous, or Lembert's interrupted sutures, around the outer layer, uniting the peritoneal surfaces, would be a very great safeguard, as we all knew in any case of intestinal suture unless there was very little distention there was apt to be leakage of the contents of the bowel. He did not like the form of ether inhaler exhibited and recommended by the author. One modified by Dr. Wyeth, with an opening for entrance of air, he considered very much better.

Dr. R. A. MURRAY said he thought that the fatal result in these cases was due most often to delay in operating, and this delay occurred usually because the profession at large believed that if there was any septic trouble in the abdomen, there was always high temperature, pulse, and respiration. This was a very great mistake. We should call the attention of the profession generally to the fact that more was to be learned from the facial appearance and the condition of shock than from the temperature, pulse, and respiration. For instance, two weeks before he had had a patient with irreducible crural hernia. Two days before he had seen her this time she had complained of moderate pain, and as she had been warned about this pain, she had immediately applied an ice bag and had sent for him the next day. She had vomited once, but the matter ejected had not been greenish; the abdomen had been flat; the pulse had been 72 and the temperature normal. The next day she had vomited once; the abdomen had been flat; there had been no impulse in the tumor, although there had been a slight impulse on the previous day; the pulse had been 72, and the temperature had been still normal. The patient had been informed that the hernia was strangulated and that an operation was necessary. The case had then been transferred to the New York Hospital, and that evening there had been still no change in the pulse and temperature, but there had been a peculiar facial expression and a smallness of the pulse which was suggestive. There had been some very slight pain. Dr. Bull had operated and had found six inches of the gut strangulated and almost black, and the sac filled with bloody fluid. He had seen puerperal septic peritonitis with almost no rise of temperature, yet with a small pulse. He believed that a wiry pulse, even though slow, the condition of shock, and the facial expression were better guides than the thermometer—in fact, the thermometer was quite misleading. If we waited for the occurrence of abdominal distention, the result was almost always fatal.

Dr. SYMS thought the case reported in the paper should be considered as one of the triumphs of modern surgery, and he hoped it would lead to very many more cases of this kind being recorded. He thought that most surgeons now agreed that the existence of peritonitis was an indication for operation. About three weeks ago he had made an appointment to operate on a case which he had diagnosed as probably tubercular peritonitis. To his surprise, a consultant had advised waiting because there had been evidently peritonitis present, and he had looked upon this as an indication against instead of for an operation.

Perhaps the most important part of the paper was the calling attention to the necessity for an early diagnosis of peritonitis in cases where there was injury to the abdomen without external marks of violence. Perhaps, as the preceding speaker had said, the pulse was the most important sign; certainly the temperature was no guide whatever. In some cases which he had seen the advance of the peritonitis had been announced by a fall of temperature below the normal. The facial expression was fully as important as the pulse—perhaps even more important. The symptom of hæmorrhage from the intestinal tract which had been present in the author's case would seem to indicate injury to the intestine, and this should in itself be sufficient to indicate the necessity for at least an exploratory operation. He had no doubt that Maunsell's method of intestinal suture was the method of the present and the future. Intestinal anastomosis by means of Senn's plates and their various modifications had been almost abandoned; it was very difficult, and required special apparatus which was not always readily obtainable. Moreover, the lateral anastomosis was an unnatural method of joining divided intestine, and the contraction which took place threatened the patient with intestinal obstruction. At post-mortem examination he had seen this contraction so great that a pencil could hardly be passed through the aperture left in the intestine. Maunsell's method produced such perfect coaptation of the peritonæum that it seemed hardly possible to excel it. The suggestion of Dr. Porter to make an overhand Lembert suture after the Maunsell suture had been made seemed to him an excellent one. In the first case of operation here by Maunsell's method—Hartley's—he believed this plan had been adopted. The portion of suture which was most difficult to make perfect and where most end-to-end sutures had failed was at the intestino-mesenteric junction, and this was the portion especially well closed by Maunsell's method.

About the time of the author's operation he had done the same operation for carcinoma. A Kraske operation had been attempted for the removal of the carcinoma, but the conditions had been such that the tumor could not be reached posteriorly, the adhesions being too dense and the tumor too high up. It had therefore been considered advisable to perform laparotomy, so this resection by Maunsell's method had been done subsequently when the patient had rallied sufficiently from the first operation. The man had done very well for a few days, but had suddenly developed an extensive slough at the seat of the Kraske operation, which had infected the entire posterior wound, and he had died of sepsis. There had been much shock at the termination of the operation, so the abdomen had been filled with hot normal salt solution with very excellent results as to the immediate improvement in his condition. He regarded it as nearly equal to infusion.

The care necessary in the administration of ether was a very important element of success in all operations. These abdominal operations should be done as speedily as possible. This was one of the great advantages of Maunsell's method, for with good assistance it could be completed in twenty minutes.

Dr. SYMS exhibited an ether inhaler which he had had made and which he considered more convenient than the other inhaler shown by Dr. Wiggin.

Dr. M. D. FIELD said that some years ago a man had been injured on the elevated railroad by a "buffer accident." He had made his way from New York city to Brooklyn, walking altogether several blocks without assistance. The accident had occurred on Sunday afternoon, but nothing serious had been observed until Wednesday morning, when he had been taken with stercoraceous vomiting. A diagnosis of intussusception had been made after a hasty consultation and injection *per rectum* had been attempted. The speaker had arrived just

after this had been done, and had found the patient in collapse. He had died shortly afterward. The autopsy had shown that the man had received a wound across the abdomen, and although there had never been anything more than a slight discoloration on the skin, the areolar tissue had been severed. On opening the abdomen, it had been found that the mesentery had been torn away for nearly half an inch, and that gangrene had resulted in nearly two feet of intestine. This evidently had accounted for the inaction of the bowels and the stercoraceous vomiting. In addition to this, the intestine had been found to have been torn in three places, and every one of those wounds had healed, and there was nothing in the abdomen which had not been absorbed except a little of the injection fluid which was found on one side nearest to the lowest wound in the intestine. He would have recovered from the three lacerations of the intestine had it not been that they were complicated by tearing up of the mesentery, which had caused gangrene of the intestine.

The PRESIDENT said that he agreed fully with Dr. Gouley that the operation should have been done earlier; it should have been done the first night he saw the patient. When he had first seen him he was seven or eight miles from his office, with many other engagements which would have made it impossible for him to operate for a number of hours. A medical student, who was living in the house, had been asked to report the patient's condition to him. Receiving word over the telephone subsequently that the patient was "all right," he did not see the boy until the following evening.

He had used the peroxide of hydrogen three times in laparotomies where patients had recovered, and there had been no sign whatever of intestinal obstruction or of inflammation. The first case had been that of an old lady upon whom he had operated in September for purulent ovarian cyst. The tumor had filled the pelvis, and had reached half way to the umbilicus. The fluid could not be removed by simple tapping, and in breaking up the adhesions with the hand, some of the remaining contents had burst through the sac at a weak point. The peroxide of hydrogen had been immediately poured in, and allowed to remain for some time. The tumor had then been removed and the cavity flooded with hot salt solution. The temperature had never risen above 100°.

About a week after the operation described in the paper he had operated on a case of pyosalpinx following abortion. The case had been rather septic, the temperature varying between 101° and 102.5° F. In breaking up the adhesions surrounding the ovary, the sac had been ruptured. Here also the peroxide of hydrogen and saline solutions had been used. The temperature had reached normal forty hours after the operation. There had been no trouble with the movements of the bowels in these cases; in fact, he found that the bowels usually moved earlier after the saline solution had been used. The use of morphine was desirable, and this he thought could be safely done when the salt solution had been employed, because this counteracted the tendency to constipation.

He did not think it necessary to use the additional row of sutures; he thought there was some danger of strangulating the circulation through the intestine. This was the great danger in the first operations of end-to-end suture where a double row of sutures was used. In his case an eighth to a quarter of a grain of morphine had been given every three hours to prevent a movement of the bowels, yet they had moved repeatedly in the course of the first few days.

He had been much interested in the remarks of Dr. Murray about the misleading character of some of the symptoms. He thought that temperature was no guide at all; the pulse and facial expression were the real guides to the diagnosis.

A Method of Rhinoplasty.—Dr. PARKER SYMS read a paper on this subject. (To be published.)

Dr. GOULEY said that he wished to speak of a method of relieving deformity of the nose resulting from injury. In 1866 a prize fighter had appeared at his clinic who had lost the ala of his nose on the left side, a man having bitten off at least three fourths of it. There had been only a little cicatricial substance left. He had adopted a very simple method of relieving the deformity—viz., excising the cicatricial tissue so as to make a long V-shaped cut and then twisting the end of the nose down and attaching the two edges of the V-shaped gap by interrupted sutures. Primary union had taken place. The nasal surface had been a little smaller at first on that side, but after a few weeks the nose had become very nearly straight. A few months later a woman had come to him with a similar deformity, a portion of her nose having been bitten off. A good result had been obtained in her case from the same operation. In these cases the flap was usually taken from the cheek, and this often left a very considerable scar on the cheek, and the edge could not be as well modeled. This very simple procedure might be applied in the majority of cases.

He agreed with the reader of the paper that an artificial nose was preferable to any of the usual methods of rhinoplasty which were employed in cases of destruction of the bony framework of the nose. In the memorable case treated by Dr. Sabine, where the finger had been fastened to the face in place of the nose, it had been perfectly evident that it was a finger and not a nose. These artificial noses very closely imitated the natural organ. He recalled a case in which a man who had been fitted with an artificial nose had provided himself with several noses—for instance, a blue nose for cold winter weather.

Dr. PORTER said that there was one difficulty in the operation described in the paper, and that was that when the greater part of the nose had been removed there was no notch left; hence it was wise to nick the flap and allow it to heal up by granulation, as the contraction which occurred during healing produced the desired depression. Another difficulty was that the flap in contracting drove the nose more to one side than the lateral flap-sliding operation. With the latter method, however, there was danger of sloughing.

Dr. SYMS said that all surgeons who had had experience in this method of operating appreciated the difficulty of obtaining the necessary depression at the side of the nose. In one case he had left in a drainage-tube during the healing process, and a loop-suture had been passed completely through the nose and septum so as to hold the flap down tightly to the cheek. It had helped a little, but where there was any extensive repair to the nose to be done, the result was always poor, and the proper thing was to cover up the gap with as good a nose as possible by the simplest form of operation.

SOUTHERN SURGICAL AND GYNÆCOLOGICAL ASSOCIATION.

Sixth Annual Meeting, held in New Orleans, November 14, 15, and 16, 1893.

The President, Dr. BEDFORD BROWN, of Alexandria, Va., in the Chair.

The Diagnosis of Pelvic Inflammatory Diseases.—A paper thus entitled was read by Dr. HOWARD A. KELLY, of Baltimore. He called attention to certain common sources of error in making diagnoses of pelvic inflammation. An erroneous conclusion was often reached in these cases, both by the general practitioner and by the specialist, by relying for the diagnosis upon such symptoms as dysmenorrhœa, more or less persistent pain in the pelvis, attacks of pain confining the pa-

tient to bed, diagnosed as peritonitis, difficult locomotion, cachexia (due to the morphine habit), tenderness on pressure over the ovarian region, and extreme tenderness at the vault on vaginal examination. Such a group of symptoms frequently characterized a false or pseudo-pelvo-peritonitis, in which there was actually no demonstrable lesion of any pelvic organ.

In order to make a diagnosis of true pelvic inflammatory disease, the inflamed structures must be examined directly by touch. The various subjective symptoms must be regarded as of secondary importance in reaching a diagnosis. Even the patient's observation that she had passed a quantity of pus could not be relied upon unless the pus was seen by the physician, as patients often mistook muco-purulent discharges from the uterus for the emptying of an abscess. Fever, and especially recurrent attacks of fever, were valuable aids in making the diagnosis, but fever was generally absent, even in abscesses, when the pus was encapsulated.

The direct examination, the sole test, was to be made by the vagina, or by the vagina and the lower part of the abdominal wall, and the diagnosis of pelvic inflammatory disease was made when a definite hard resisting mass was felt on one or both sides of the cervix. Through an empty rectum these masses were still more distinctly outlined. When the disease was not quite so evident a bimanual examination through the rectum and abdomen should be made, carrying the index finger of the lower hand above the rectal pouch behind the uterus and laterally out on to the broad ligaments. The most minutely accurate examination of the pelvic organs which could possibly be made was called for when the ovaries and tubes were inclosed in delicate bands of adhesions which allowed considerable mobility to structures not enlarged. This was accomplished by the tri-manual method by the vagina, the rectum, and the abdomen simultaneously, under anaesthesia. (See Dr. Kelly's article in the *Journal* for November 25th.)

The Conservative Treatment of Pyosalpinx.—Dr. C. KOLLOCK, of Cheraw, S. C., followed with a paper thus entitled. He said that in cases of pyosalpinx much caution and a very careful and rigid examination were called for to determine the cause of the presence of pus, the length of time it had been there, and the condition of the walls of the tube in which it was found. Attention should also be given to the peritonæum and the ovaries, but, above all, there should be the strictest inspection of the endometrium, a disordered condition of which contributed much to the production and continuance of pus in the tubes.

Within a year or two changes had been made in the treatment of pyosalpinx, and conservatism now entered largely into its management. Men of high position in the profession were more decidedly agreed that a moral obligation rested upon us to relieve patients without the sacrifice of any organ, or part of one, when this was compatible with safety. Recently Polk, Pryor, Krug, Boldt, and Dudley had reported to the New York Obstetrical Society a number of cases of pyosalpinx treated by the conservative method now in vogue. This treatment, when faithfully carried out by curetting and aseptic division, had not only been successful in saving the tube and ovary on the non-affected side, but in several instances the diseased tube had been entirely relieved of the presence of pus. That many cases of pyosalpinx had been accurately diagnosed and radically cured without the mutilation of any part of the sexual organs was well authenticated. Dr. Kollock's experience, while limited compared to that of others, had been sufficient to convince him that the conservative system of practice was bringing us to that period when the mutilation of women, once supposed to be necessary, should cease.

Dr. Kollock then reported a few cases of pyosalpinx which

had fallen into his hands, the happy termination of which had placed him under obligations to the pioneers in the conservative treatment. All but one of four patients had been relieved entirely without resorting to oöectomy.

Dr. GEORGE J. ENGELMANN, of St. Louis, emphasized the importance of administering an anæsthetic in examining patients with pelvic inflammatory disease before serious operative procedures were entered upon. It was not alone the anæsthetic, however, but the practiced touch.

Dr. JOSEPH PRICE, of Philadelphia, alluded to dropsical tubes as being a group of cases that puzzled the practitioner from a diagnostic point of view and afterward surgically. Angry pus cases, while acute in their early history, were simply cases to be dealt with surgically. The attacks of pain were numerous, and fixation and tenderness were characteristic symptoms. Everything in the pelvis was board-like, and when the surgeon opened the abdomen from above it was difficult to distinguish the uterus from the appendages, and *vice versa*. These were trying cases to deal with.

Dr. JOHN D. S. DAVIS, of Birmingham, Ala., said he was in favor of evacuating pus wherever it was found in the body. There were, however, some cases in which pus could be removed without sacrificing the ovaries or tubes. As to the use of an anæsthetic, he considered it absolutely essential in the examination of doubtful cases, but where the diagnosis was plain it was not necessary.

Dr. R. B. MAURY, of Memphis, said the great difficulty in the class of cases referred to by Dr. Kollock, in which there was pelvic inflammation associated with muco-purulent discharges from the uterine cavity, was to decide whether there was pyosalpinx. There was what was denominated endometritis, associated with it normal discharges and exudation in the pelvis, but Dr. Maury said he was at a loss sometimes with the most careful diagnostic measures, whether under ether or without it, to form in his own mind an accurate picture of what the precise state of things was in the pelvis. The rule he had laid down in the treatment of such cases was, if they were acute, non-puerperal or puerperal, that the woman was entitled to a certain period of rest and other measures non-surgical before deciding upon a radical operation.

Dr. W. E. B. DAVIS, of Birmingham, Ala., believed that in the examination of patients it was exceedingly difficult in some cases to make an accurate diagnosis without an anæsthetic. However, there were women who could stand the examination well without it. In regard to endometritis, by judicious and careful ennetting he believed many patients could be saved the necessity of an abdominal section. The trouble was that practitioners often denounced one procedure and upheld another without outlining the indications for a certain position. It was very important to cure the endometritis before it spread to the tubes.

Dr. R. M. CUNNINGHAM, of Pratt City, Ala., was inclined to look upon endometritis in the vast majority of cases of disease of the appendages as the *fons et origo* of the whole affair, and he believed that the operation which had been systematized and popularized by Dr. Polk was a safe, conservative, and reliable procedure. Furthermore, in the hands of the general practitioner it would relieve many patients that now went to the laparotomist.

The PRESIDENT said the mobility of the uterus and its fixation were questions of great importance in diagnosing pelvic inflammatory disease.

A Memorial Address on Dr. Ephraim McDowell was delivered by Dr. L. S. McMURTRY, of Louisville. He said it would seem almost a work of supererogation to submit an elaborate biographical sketch of McDowell after the very complete ac-

counts of his life and labors which had been contributed to medical literature by the late Professor Samuel D. Gross and the late Dr. John D. Jackson; yet he presumed that no one would for a moment question the good taste and wisdom of perpetuating in the volumes of *Transactions* of the association the names and deeds of eminent Southern surgeons who had done so much to lay the foundation in America and the whole world for the present splendid system of surgery and gynecology. This galaxy of illustrious names would be incomplete without McDowell's, the father of ovariotomy and the pioneer of abdominal surgery, which in modern times had grown to such grand proportions.

In the year 1852, twenty-two years after the death of McDowell, Professor Gross, in his celebrated *Report on Kentucky Surgery* to the Kentucky State Medical Society, had presented a sketch of the life of this eminent surgeon, with a detailed account of his original surgical work. This sketch had subsequently been incorporated in Gross's *American Medical Biography*, published in 1861.

After giving a sketch of Dr. McDowell's life, Dr. McMURTRY referred to his first ovariotomy, on Mrs. Crawford, and noted some points with reference to his operative technique. The operation in this case had been done without an anæsthetic. The incision was made to the left of the median line, about three inches external to the rectus muscle, and was nine inches in length. After opening the peritonæum he first tied the pedicle with a strong ligature, and then cut open the tumor and removed its contents. He then divided the pedicle, which had previously been tied, and removed the sac. As soon as the incision was made into the abdomen, he stated, the intestines rushed out upon the table and were not replaced until the operation was completed, which, he added, "occupied twenty-five minutes." He then turned the patient upon the left side to allow all fluids to escape. He closed the incision with interrupted sutures and brought out the ligature attached to the pedicle at the lower angle of the wound.

In reporting his cases he had omitted mention of the material composing the ligature, and Dr. McMURTRY had been informed by a friend of McDowell's, now dead, who had been a great deal about McDowell's office in his boyhood, that the ligatures used were made of shoemaker's thread and waxed thoroughly before being used. Adhesive strips and bandages completed the dressing, and, in the author's language, he prescribed "a strict observance of the antiphlogistic regimen." The special features of the technique were: 1. The incision was made through the muscular layer of the abdominal wall three inches external to the rectus muscle. 2. The cyst was not evacuated until after the pedicle was tied. 3. An effort was made to cleanse the peritonæum of fluids. 4. Drainage was aimed at, as well as the escape of the ligatures, by bringing the latter out at the lower angle of the incision. 5. The operation occupied only twenty-five minutes, expedition being more the result, doubtless, of the want of an anæsthetic than of anything else.

In his report of his second case he had used this language: "I laid her side open." In his third case, however, he had adopted the median incision, saying in his report of this case, "I changed my place of opening to the linea alba." In all his cases he had ligated the pedicle before separating the adhesions or tapping the tumor. In his third case he had mentioned that the ligatures could not be released for five weeks, at the end of which time the cord had been taken away.

The Incision in Abdominal Section; How to Close it; Post-operative Complications about it.—Dr. JOSEPH PRICE, of Philadelphia, read a paper on this subject. He said the question that most vitally concerned surgical and gynecological

work was, How could the mortality be reduced? Surgical judgment and surgical fingers constantly determined the issue of life or death.

The Incision.—There was nothing from which one could ever approximately determine to what extent the length of the incision influenced the mortality. The statistics of comparative results would not prove satisfactory, for the reason that so many other compromising elements were entered—adhesions, their character, extent, and locality. That the incision exercised a greater influence than was generally recognized or admitted, he entertained little doubt. As to length, no rule of mathematical certainty could be laid down. In his own experience he found the union of convenience and safety to lie with the short incision. The short incision narrowed the limits of hemorrhage. It was safe to begin with a small incision, and where the size and character of the tumor or the presence of complications required a longer one, it could easily be made. Very much abdominal work could be done through an opening that would admit only two fingers. The reliance of the abdominal surgeon must be largely on educated fingers. In the majority of cases an operation could be done through a small incision without the viscera being seen by the spectators or the operator. Tumors that were adherent throughout, also irreducible or solid tumors, required a long incision for their removal and for dealing with complications. In the majority of cases to so enlarge the opening as to obtain a view of the parts, we augmented the risk of ventral hernia and provoked tediousness of convalescence.

The importance of a perfect closure of the incision had only recently received the attention it deserved. The effort should be to approximate as nearly as possible to normal conditions, dealing with all existing or possible complications with scrupulous minuteness and care, thus guarding against accidents. He would not profess to suggest uniform procedures to be carried out in all cases, as each operator had his own way and did his own work best in that way, and it would not be possible for him to apply others' methods safely and successfully without special training. The author was satisfied that exposure and manipulation of the incised parts, as well as of the peritonæum, were harmful. Incisions bathed in pus and filth and freely manipulated often failed to unite. Suppuration of a wound was largely due to careless closure or to tight sutures, including too much tissue. Tight suturing was too common, and had destroyed life in many feeble subjects. Suppuration due to tight suturing, also stitch-hole abscesses, where they did not result fatally, prolonged convalescence. Cases were cited in point.

Through-and-through suturing, including all the structures—more of the central structure than of the skin or peritonæum—with either silkworm gut or pure silk, gave the most satisfactory results. Silkworm gut seemed to be the favorite material at present, as it possessed all the natural and essential qualities of a suture; it was small, strong, and non-irritating—the three cardinal virtues of all good suturing material. Terracing sutures had nothing to recommend it; on the other hand, the author believed it prolonged an operation. Retraction of the skin and peritonæum by the introduction of silkworm sutures brought about inclusion of more of the central structures and the least possible tension on the skin and peritonæum. Keith, Tait, and Bantock all used a fine straight needle, and their work had been about perfect. The use of large, curved cutting needles was harmful, for it primarily favored hemorrhage and secondarily stitch-hole abscesses.

Dr. KELLY thought that long incisions had little or nothing to do with the mortality except in an indirect way. Where there were many adhesions a long incision was necessary. Handling of the viscera in pre-antiseptic days had increased

the chances of suppuration, and consequently of peritonitis and death. The chances of infection, he believed, were greater with a long incision. Hernia came from improper closure of the abdominal wall or the use of the drainage-tube, causing weakness of the abdominal wall at one point.

Dr. L. S. McMURTRY, of Louisville, demonstrated on the board his method of suturing. He brought peritonæum to peritonæum, muscular structure to muscular structure, fascia to fascia, and skin to skin, and said that the least quantity of interposing material there was between the tissues that were to be brought together the better. He could not agree with Dr. Kelly that the drainage-tube was the cause of hernia after closing the incision.

Dr. R. B. MAURY, of Memphis, favored the silkworm-gut suture. His experience covered nearly three hundred sections, and he had simply used the through-and-through suture. He had observed hardly any abscesses and the smallest possible number of hernias; the latter, he said, could be counted on the fingers of one hand.

Dr. T. J. CROFFORD, of Memphis, said it was considered that all hernias resulting from abdominal section were due to failure to get union between the opposing layers of the transversalis fascia. He used a long curved needle instead of a straight one. With it he could put in stitches in one third of the time he could with the ordinary needle. He had used it in upward of two hundred sections, and had not had a case of hernia follow one of them. He had also had the smallest number of stitch abscesses.

Dr. PRICE said there had been an immense amount of theory about the matter of long and short incisions, and there had been a tendency on the part of some to brush aside pre-antiseptic work. Notwithstanding this, however, some of the older surgeons had had as good results in their day as were obtained in some of our hospitals at present. He urged great caution in the terracing method of suturing.

Is Operation demanded in all Cases of Appendicitis? The Best Time to Operate.—This paper was read by Dr. A. M. CARTLEDGE, of Louisville. He said that inflammatory conditions of the appendix were essentially intraperitoneal lesions. Modern surgeons had an abiding faith in the surgical maxim that whenever pus was believed to be present in tissues or organs of the body, it should be removed; hence the new pathology of a very old and frequently fatal malady inspired surgeons to attempt some radical means of relief. Perfection in technique could come only from individual experience and a knowledge of the work of others.

The pathology of a disease was the only true keynote of its rational treatment. Probably the best classification of appendicitis was catarrhal (simple), ulcerative (from tuberculosis from foreign bodies), and perforating (from ulcerative perforation from strangulation, the result of twisting). This classification dealt strictly with the changes occurring in the appendix, and should be considered apart from the peritoneal and other conditions which might ensue and cause well-marked variations in the clinical course of the disease. If the walls of the appendix gave way in a mass of fibrous adhesions, the result of long-continued irritation, the pus which formed was rather securely encapsulated and might be days, weeks, even years in finding an outlet. In fact, as was often the case, if the *Bacillus coli communis* predominated and a few staphylococci were present, it might remain encapsulated unless it received a new impetus of irritation. Cases had been reported illustrating this point. Cases had also been reported illustrating the part played by injury as an exciting cause in appendicitis, and the belief had been expressed that a chronic form of unrecognized appendicitis had existed prior to such injury.

We knew more about the pathology of ulcerative or suppurative appendicitis than we did of the catarrhal form, because the patients not operated upon who recovered mostly had the form called catarrhal. These were cases which progressed with little pain, with very little fever, 101° F. as a maximum, in which the tumor subsided. These cases were the pride of the poultice-and-opium practitioner. Ulcerative appendicitis must be either tuberculous or traumatic, the trauma being due to foreign bodies or enteroliths, usually the latter. The tuberculous cases would give rise to acute symptoms only as the result of cicatrization and stenosis, with distal distention, or secondary inflammation with pyogenic organisms. Either of these results favored perforation. This was essentially the chronic variety, but it would eventually lead to perforation, probably in the ways indicated.

When physicians came to view inflammations of the vermiform appendix in their proper light, the author said, the prognosis would assume a very different shade. We should consider any appendix once so affected as to deserve the name of appendicitis, whether from tubercle or from trauma, a lastingly diseased structure, and the fancied cures were quiescent states, the results of conditions very easily recognized. If we could trace our so-called first attack cases of appendicitis through subsequent ones, we should say the progress, not only as to health and comfort but as to life, was bad—very bad. A man had the trouble three, four, or five times, apparently recovered, and all the attacks were probably counted as cures by different physicians. Finally he died in an attack; the death was counted but once, and sometimes not then; for if, as was often the case, death resulted from the rupture of an unrecognized appendicular abscess, or from diffuse peritonitis after perforation, the chances were that the cause was never suspected and the death was recorded as occurring from peritonitis. Every case of appendicitis not barred by surgical limitation should be the subject of operation. The best time, provided the symptoms were not too urgent, was after the bowels had been thoroughly moved.

Dr. JOSEPH PRICE agreed with the author of the paper that there was but one treatment for appendicitis—namely, removal of the appendix. He considered it a murderous disease, to be classed with extra-uterine pregnancy. Both demanded prompt surgical treatment when first discovered. He recommended in acute cases of appendicitis, without pus, removal of the appendix and freeing of the inflammatory adhesions.

Dr. G. W. LONG, of Richmond, opposed indiscriminate operations in appendicitis. Autopsies had shown that one third of the human race had had this disease at some period of their lives. That being true, and considering the small percentage of deaths, it naturally followed that appendicitis did not always kill, even if the patient was not operated on. In the catarrhal form, he thought there was no reason for operating. In the perforative form we should operate. In the perforative form without adhesions we should also operate as soon as we made a diagnosis.

Dr. WILLIAM T. BRIGGS, of Nashville, had been operating in every case of appendicitis that came into his hands where the diagnosis was clearly established, and he had had no occasion to regret it. He had operated in cases where there were perforative symptoms and in others where there were none, in some where there was and in others where there was not suppuration, and in still others where there was and where there was not sloughing.

Dr. C. KOLLOCK, of Cheraw, S. C., had seen a great many cases of appendicitis. He recommended saline treatment in the first attack, but if there was a recurrence he invariably operated and had never lost a patient.

Dr. W. E. B. DAVIS, of Birmingham, Ala., had never operated in one of these cases without advising a secondary operation for removal of the appendix, telling the patient that the disease would recur. He thought, however, there were many patients that got well without operation, but it was a difficult matter to tell in what cases we should not operate.

Dr. HUNTER MCGUIRE, of Richmond, said he had many a time operated too late, but never in his life had he operated too soon. If, after free and full purgation with salts, administered by the mouth and by the rectum, the symptoms were not relieved, he thought the time for operation had come, and did not hesitate to operate. He had never known the mere operation, in the hands of skillful surgeons, to kill or add to the danger to the patient's life. Appendicitis killed, and it was put down to inflammation of the bowels, peritonitis, or something else.

Dr. WILLIS F. WESTMORELAND, of Atlanta, favored early operative interference. He had never been called in sufficiently early by the general practitioner to operate, consequently the patients had died promptly. It was necessary to educate the general practitioner to send patients to the surgeon for operation earlier.

Dr. W. B. ROGERS, of Memphis, had seen cases of catarrhal, ulcerative, and gangrenous appendicitis, but had never been able to make a diagnosis until he had opened the abdomen. The symptoms of the disease were the same as those of peritonitis, localized at the site of the appendix. In the cases in which he had operated he was satisfied that no medicine would have effected a cure.

Dr. CUNNINGHAM agreed with Dr. McGuire that an operation should be done in case medical treatment failed to afford relief.

Dr. RIGGS, of Birmingham, advocated operation during the interval between attacks in the recurrent form of the disease.

Dr. JAMES A. GOGGANS, of Alexander City, Ala., had operated early in seven cases, and all the patients had recovered.

Intracranial Neurectomy and Removal of the Gasserian Ganglion for Intractable Neuralgia, with Report of Cases.

—Dr. LOUIS MCLEANE TIFFANY, of Baltimore, read a paper thus entitled. Within the past few years intracranial excision of portions of the fifth nerve, together with more or less complete removal of the Gasserian ganglion, had been done for the cure of intractable trigeminal neuralgia. The credit of first doing such an operation rested with Rose, of London, after whom were to be mentioned Novaro, Horsley, Andrews, and others. Dr. Tiffany then gave an account of Hartley's method, which had been described in the *Annals of Surgery* for May, 1893.

It had been Dr. Tiffany's fortune to operate four times by excision of intracranial portions of the fifth nerve. In each case the reason for the operation had been trigeminal neuralgia not due to disease of the brain. Hartley's method had been followed. All the patients had recovered from the operation and been relieved of neuralgia—permanently it was to be hoped.

The operations had been long, but recovery in each instance had been rapid and complete. In all cases the wounds had healed at once, except in the fourth case, where the patient had scratched the recent wound and infected it.

It was worthy of note that in the case of the patient upon whom the operation had been performed fourteen months before, there was less anesthesia and more perverted sensation than in the other cases. Sensation seemed to have returned somewhat, and it was interesting to speculate as to whether it would ever return completely, and, if so, by what route. Preservation of the sense of taste after division of the second and third divisions was to be noted. That the power of recognizing heat and cold existed in a region rendered devoid of ordinary

sensation by nerve section was of much interest, and recalled an observation made some time since that a conjunctiva rendered insensitive by the local application of cocaine still appreciated the difference between heat and cold.

When severing the third division of the nerve in the fourth case, Dr. Tiffany believed that he had isolated and recognized the motor branch before dividing it. Not having provided himself with a sufficiently long and fine electrode, he had not been able to prove the accuracy of his opinion by electric stimulation, and had therefore divided everything. By leaving the motor branch intact, the patient would be protected from having food collect in the cheek of the paralyzed side, and in future operations an effort should be made toward this end.

The Vaginal Route as compared with the Abdominal for the Removal of Pelvic Viscera.—

In a paper thus entitled Dr. GEORGE J. ENGELMANN, of St. Louis, called attention to the advantages offered by the vaginal route for many of the operations, and especially some of the more dangerous, now practiced by means of abdominal section for the removal of the uterus and appendages, and particularly in suppurative cases with multiple centers of suppuration. It was vaginal hysterectomy for malignant disease of the uterus which had first paved the way to the more extended use of the vaginal route for such operations. The author paid a fitting tribute to American surgery when he said that this, like others of the great operations of recent times, had emanated from a Southern surgeon. In New Orleans, in 1846, Dr. Dubourg had fully described this operation, and repeatedly practiced it with success since 1829, but it had been forgotten again until it was revived within the last decade, and vaginal hysterectomy for malignant disease of the uterus was now everywhere an accepted operation, which had been rendered especially safe and rapid by Péan's forcipressure method, and it was the French surgeon who had extended the field to the removal of other contents of the pelvis by the vaginal route, resorting to piecemeal removal (*morcellement*) for the extirpation of masses too large to be extracted in their entirety through the vaginal opening. The leaders in this new departure had been Péan and Sigond, of Paris, Doyen, of Reims, and Jacobs, of Brussels, and it was followed for the present by the French school only. In Germany and England these operations were practiced but little if at all, and in this country the vaginal route was limited to the removal of the uterus, with perhaps an operation for prolapse or inversion. In isolated cases the removal of prolapsed ovaries resting on the vagina, or of small and conveniently situated ovarian cysts through the vaginal opening, was now and then performed everywhere, but this was a very different matter. The surgeons who were leading in this field varied somewhat in their methods and in the extent to which they applied them, but the vaginal route now served them: 1. For hysterectomies for the removal of malignantly diseased uteri and moderately enlarged uteri, for hysterectomy by *morcellement*, and for uterine tumors which did not extend above the navel. 2. For the bilateral removal of appendages with diseased uteri. 3. For the treatment of pelvic suppuration of all kinds. Dr. Jacobs even preferred the vaginal method for certain cases in which the appendages of one side only were to be removed. Péan limited hysterectomy by *morcellement* to benign growths and to all cases of pelvic suppuration treated to-day by laparotomy, while Sigond still preferred laparotomy when an operation was indicated in unilateral cases, above all in unilateral salpingo-oophoritis when non-suppurative. The indication given by Terrier and indorsed by Jacobs for the resort to the vaginal route was, first, for cases in which suppurative pelvic peritonitis had returned if laparotomy had already been practiced; secondly, for suppurative pelvic peritonitis with fixation of the uterus and multiple pus sacs,

while laparotomy might be resorted to in enucleable non-suppurative salpingo-oophoritis.

The advantages of the vaginal route were the rarity, if not absence, of shock in cases in which we should have to treat it if the abdominal method was resorted to; the rapidity of the operation, by reason of the forcipressure method and the total absence of ligatures and sutures, the nearness of the parts to the finger, and in aggravated suppurative cases the guarding of the abdominal cavity from the pelvis proper, or the field of operation, by the adhesions and inflammatory products, which formed a perfect barrier. It seemed the natural route for reaching the parts below the pelvic brim. There was after the operation perfect drainage established by the forceps and the dressing *per vaginam*, so that there was no possible stagnation. Recovery appeared to be more rapid and more satisfactory than by the abdominal method. The forceps was removed in forty-eight hours, and the patient was sitting up on the fifth or sixth day, and moving about between the tenth and fourteenth, when cicatrization was completed.

Trephining as a Cure for Traumatic Epilepsy.—This was the subject of a paper read by Dr. JOHN T. CHAPMAN, of Bessemer, Ala. The author had operated on a boy who some years previously had received an injury of the head from a blow, fracturing the parietals. Three weeks after the injury he began to have epileptic convulsions. At the time Dr. Chapman saw the patient the convulsions had become more frequent and more severe. Two buttons of bone were removed at the seat of injury; there was considerable pressure from the depressed bone, and the membranes were hard and indurated. The indurations were cut out and the edges of dura brought together by continuous suture. The wound healed by first intention. For two months after the operation the patient continued to have convulsive seizures, but they gradually grew less until they ceased. The operation had been done four years and a half since. The patient was now eighteen years old, weighed a hundred and seventy pounds, and worked in a foundry. The author believed that the doctrine that depressed fractures of the skull without symptoms required no operative interference was in a measure at the bottom of many of the unfortunate sequelæ of head injuries.

The President's Annual Address was then delivered. The president said that six years before, a small band of earnest, brave, and determined Southern surgeons had assembled in the city of Birmingham, Ala., with Dr. Haggard as president, amid doubts, anxieties, and misgivings for the future, to found and organize an association that would meet the advanced requirements of the times, and rank in point of talent, efficiency, and high-toned character with the other great institutions of the kind in this and other countries. Notwithstanding the stupendous difficulties encountered, the vast labor expended, and the many obstacles in its path, the association stood to-day a monument of energy, enterprise, and indomitable will power.

Remarks on the Surgical Treatment of Epilepsy.—This was the title of a paper read by Dr. B. E. HADRA, of Galveston, Texas. He thought that modern researches promised to divest even the so-called genuine epilepsy of its mysterious functional character, and to make it consequently more accessible to surgical interference. Among the points he would mention as having to be cleared up was the deficiency in our knowledge of the great number of brain centers that must exist. As an instance he mentioned the unquestionable fact that very often the stomach or the intestines gave the initial symptoms, but because we did not yet know these centers, and because the signals were very abstruse, it might easily happen that another group of muscles, which had only secondarily become excited, was charged with giving the signal. The next point was to find

the real seat of the primary morbid changes in the brain, which was not necessarily the focus belonging to the initial signal. Topographical and electrical localization mapped out only the latter. The author insisted that the induced current used in a different way would be all we might desire for such a purpose. It must be applied over a large area of the exposed cortex until a spot was met from which not only a certain group of muscles could be made to contract, but a regular epileptic fit could be elicited. This spot must be the locality of the morbid substratum, whether it coincided with the physiological focus of the muscles giving the signal or not; consequently this spot must be removed.

The Management of Epicycstic Fistula.—This was the subject of a paper read by Dr. JOHN D. S. DAVIS, of Birmingham, Ala. He said the epicycstic surgical fistula was the title given to a suprapubic fistula opening into the bladder created by the surgeon for exploration, intravesical treatment, or drainage—a fistula which, acting as an artificial urethra, was capable of giving free access to the inside of the bladder for cystoscopic exploration, and of providing a ready, convenient, and comfortable means of emptying the bladder at will, and gave the surgeon a competent opening into the viscus for intravesical applications. It constituted an essential element in the speedy and complete evacuation of the contents of the bladder in all epicycstic operations, and imitated Nature in the restoration of the continuity of the urinary tract as the pathological changes within the bladder subsided.

Permanent after-drainage in all intravesical operations could not be necessary, but it was highly essential to secure good and sufficient drainage until the paracystic tissue was disengorged, the cystitis was relieved, and the urine had become normal and passed *per urethram* unobstructed. Until this end was attained, a complete artificial arrangement for the escape of the contents of the viscus must be made. In cases of prostatic hypertrophy or malignant growths, when removal of the obstruction was impossible or contra-indicated, the epicycstic surgical fistula was clearly indicated and essentially necessary.

A series of cases of **Tuberculosis of the Bladder** was reported by Dr. HUNTER MCGUIRE, of Richmond.

Personal Experience in the Operative Treatment of Stone in the Bladder.—This was the subject of a paper read by Dr. WILLIAM T. BRIGGS, of Nashville. The author said that when living in the midst of the stone region, and in a city whose celebrity as a surgical center had been long established, it had been his fortune to meet with an unusually large number of cases of vesical calculi. He had had two hundred and eighty-four cases of stone under observation during the past forty-two years. The Southern States had furnished the greater number of the cases, and a few had come from the Western States. Tennessee, Kentucky, and Alabama had supplied the largest number. Two hundred and seventy-two of the patients had been men, and twelve women. One hundred and fifty-three had been children or youths under twenty years of age, and one hundred and thirty-one adults varying in age from twenty-one to eight years.

In operations for stone he had not restricted himself to any single method. He had done all the operations, both cutting and crushing, and he considered it very fortunate that surgery had so many resources for the relief of this distressing and painful malady. The success of every method of operating largely depended on the preparatory treatment of the patient. The pre-eminent success of Dudley, Mott, and others had doubtless been due to the judicious treatment employed in the preparation of subjects for the operation, and the author was sure that his own success had been greatly enhanced by a strict observance of the preparatory treatment.

In conclusion, Dr. Briggs said his experience in the surgical treatment of stone in the bladder would sustain the following propositions: 1. No method of operation was adapted to all cases. 2. Thorough preparatory treatment was essential to success. 3. Litholapaxy was the operation when the patient was an adult with a capacious and tolerant urethra, with a bladder free from severe chronic inflammation, and with a small or medium-sized stone or, if large, of soft consistence. 4. The suprapubic was the best operation for large and hard calculi. 5. The medio-bilateral operation should be chosen in all other conditions, because it was the easiest, safest, and best.

Hypertrophy of the Omentum in Hernia, with a Specimen.—Dr. GEORGE A. BAXTER, of Chattanooga, read a paper with this title and presented a specimen (congenital) of about the size of a goose egg from a negro thirty-four years of age. It had been directly increased somewhat by his working in a rolling mill thirteen years ago, but had had a constant growth since that time until it reached half or two thirds of the way to the knees, and had become an unendurable nuisance. It was therefore removed.

The Treatment of Gunshot Wounds.—Dr. WILLIS F. WESTMORELAND, of Atlanta, read a paper thus entitled. The first of this class of injuries that he had been called upon to treat was shortly after he had graduated, and it had thoroughly convinced him of the fallacy of probing. He never used a probe in a gunshot wound except as it might become necessary in the progress of a formal antiseptic operation. The probing rarely did any good beyond satisfying a morbid curiosity. Even if the wound was not infected by the probe itself, it allowed the entrance of air. It destroyed Nature's occlusive blood clot and in this way prevented prompt union.

Wyeth's Bloodless Method in Amputation at the Hip.—

Dr. F. W. PARHAM, of New Orleans, prefaced his paper on this subject by reading some extracts from a paper by Dr. John A. Wyeth which had been read before the last meeting of the New York State Medical Association. He made use also of the statistics kindly furnished him by Dr. Wyeth. These statistics were as follows: Sarcoma, 17 cases, 2 deaths, 11-76 per cent.; inflammatory bone disease, 18 cases, 3 deaths, 16-6 per cent.; violence, 4 cases, 4 deaths, 100 per cent.; nerve injury, 1 case, no death. Total for disease, 36 cases, 5 deaths, 13-88 per cent.; for injury, 4 cases, 4 deaths, 100 per cent.; for both disease and injury, 40 cases, 9 deaths, or a total of 22-5 per cent. In this list there was one case now published for the first time. These statistics showed a mortality reduction for civil practice of at least one half. Ashburst's statistics gave 40-2 per cent. for disease and 82-4 per cent. for injury, or a total of 64-1 per cent. Leming gave for gunshot wounds 98 per cent., for disease 42 per cent.

Dr. Parham referred to the various methods proposed for controlling hemorrhage and spoke of the various modifications of the Wyeth method. He specially urged that the outer pin should be placed higher, so that the disarticulation might be done before the tube was removed. He favored Thomas's suggestion that in placing the pins the tube should be put around first at the proper place, and that then the pins should be put in at the lower border of the tube. He believed that the bone should be disarticulated entirely without sawing. In conclusion, the reader remarked, "I am inclined to agree with Murdoch that the method of Wyeth is the best yet devised."

Laparotomy in General Surgery.—A paper embodying a report of twenty cases was read by Dr. W. B. ROGERS, of Memphis.

Operative Procedures for Carcinomatous Tumors of the Breast.—Dr. J. McFADDEN GASTON, of Atlanta, Ga., read a paper thus entitled. He said that a point of great moment as

to the extent of operative procedure pertained to the leaving of any portion of the mammary gland when only partially implicated in the carcinomatous growth. The æsthetic element should never enter into the decision of such a vital question as the arrest of carcinoma, and whenever a breast was the seat of a malignant tumor, whether wholly or partially involved, there should be no hesitation about removing the entire glandular structure. If only a part of the mammary gland seemed to be involved and it was evident the knife could be carried outside the neoplasm into the apparently sound tissues of the breast, there was every reason to believe that if any portion of the gland was left it might become the seat of disease and that recurrence would most probably follow the operation. On the other hand, an entire ablation offered better prospects of success.

The relative advantages of the knife and cauteries in the management of carcinoma depended very much upon the progress of the disease. In the incipency of the local trouble there could be no doubt in regard to excision being preferable to cauterization, but after full development of a tumor with a tendency to degeneration and breaking down of its structure the resort to escharotics had its advantages in extending to the remote ramifications of the disease. It was a prevalent impression that certain caustic applications attacked diseased structures without affecting the sound tissues, and that the so-called roots of a cancer were thus destroyed. There seemed to be some just foundation for this belief in regard to applications of arsenic, but the destructive effect of caustic potash in the form of Vienna paste extended to every vital structure with which it came in contact, and the same held in reference to the plaster of sulphuric acid and charcoal as an escharotic.

Dr. Gaston said the treatment of carcinomatous tumors of the breast with caustics had been tested fully by Bougard, of Belgium. His paste contained chloride of zinc, arsenic, cinabar, and corrosive sublimate. Of one hundred and sixty cases, sixty-two, or nearly forty per cent., had been free from recurrence three years after treatment.

The Diagnosis of Some Abdominal Tumors supposed to be Ovarian.—This was the title of a paper by Dr. JAMES A. GOGGANS, of Alexander City, Ala. He said the first requisite of the abdominal or pelvic surgeon was to acquire the ability to make a diagnosis. Text-books led one to believe that this was quite an easy thing to do, but his experience had convinced him to the contrary. He then reported a few cases which had come under his observation which served to illustrate the fact that the diagnosis was often difficult, and in some cases quite impossible.

Does Gonorrhœa in the Female invariably prevent Conception?—Dr. JOHN T. WILSON, of Sherman, Texas, read a paper thus entitled. He said it had long been known that gonorrhœa in women was sometimes attended with complications that proved troublesome and of serious import. Authors had for many years been describing endometritis, metritis, and inflammations of the Fallopian tubes, ovaries, and peritonæum produced by an ascending specific elytritis, these structures being invaded by the poison slowly creeping up through the cervix, involving first the mucous membrane in its tract and extending by continuity of structure to the deeper tissues. The more serious results, however, had not been appreciated or so well understood until within recent years, when laparotomy had become so common an operation and the pathology of the more important sequelæ was studied from the specimens themselves. According to the experience of our best authorities, it was very difficult to distinguish positively between gonorrhœal and severe simple elytritis without a clear and authentic history, for both were attended with the same symp-

oms and with the property of infecting the male; so that it was not altogether an easy task to say when ovarian, tubal, and uterine troubles, even with the presence of the Neisser gonococcus, had a specific origin, especially as simple elytritis would sometimes produce them all. Dr. Wilson had observed quite a number of women who were the victims of gonorrhœal infection, many of them innocently, having contracted it from their husbands, and had believed the trouble to be an ordinary leucorrhœa. Many of those whose history he had been enabled to follow had afterward borne children, had remained for many years apparently healthy, and had given no evidence of the usual complications.

Dr. Wilson then reported cases illustrative of some of these conditions and results. That gonorrhœa did frequently prevent conception was probably well established; but he did not think it was by any means the universal rule—clinical illustrations were too many to the contrary. If Noeggerath's statements were literally true, sterile women and fruitless marriages would be far more common and the increase in the race would be greatly lessened, for there was a surprisingly large percentage of men, judging from his experience, who, if they confessed the truth, had suffered at some time in their lives with gonorrhœa.

Some Remarks on the Practical Treatment of Hepatic Abscess.—Dr. JAMES E. THOMPSON, of Galveston, Tex., in a paper with this title, confined himself to a few practical remarks on the diagnosis and treatment of hepatic abscess, and reported two interesting cases. He mentioned a few points on the treatment of the cavity after the contents had been successfully removed. It was often exceedingly difficult to obtain free drainage even when large tubes were employed. In some cases even swabbing the walls of the cavity was ineffectual, and these cases were practically hopeless, owing, perhaps, to inherent tissue weakness. The author had tried curetting in one of his cases, and, although he removed, as he thought, all necrotic tissue, still in a few days the cavity was as bad as before. Continuous irrigation often afforded a means of efficient removal, but the tubes had an aggravating habit of becoming blocked and requiring frequent changing and cleaning. Irrigation with a solution of sulphate of quinine—1 to 1,000—had in one of his cases been remarkably successful, and, although the improvement might have been a coincidence and not an example of *post hoc ergo propter hoc*, he thought that in cases of amœbic dysentery, at least, it deserved a fair trial.

Officers for the Ensuing Year were elected as follows: President, Dr. Cornelius Kollock, of Cheraw, S. C.; vice-presidents, Dr. A. B. Miles, of New Orleans, and Dr. J. B. S. Holmes, of Rome, Ga.; secretary, Dr. W. E. B. Davis, of Birmingham, Ala.; treasurer, Dr. H. P. Cochran, of Franklin, Tenn. The association adjourned to meet in Charleston, S. C., on the third Tuesday in November, 1894.

Book Notices.

The Students' Dictionary of Medicine and the Allied Sciences. Comprising the Pronunciation, Derivation, and Full Explanation of Medical Terms, together with much Collateral Descriptive Matter, Numerous Tables, etc. By ALEXANDER DUANE, M. D., Assistant Surgeon to the New York Ophthalmic and Aural Institute, etc. Philadelphia: Lea Brothers & Co., 1893. Pp. viii+650. [Price, \$4.25.]

This medical dictionary is, as the title indicates, primarily intended for students.

Obsolete and rare terms have been omitted; only words in actual use are to be found in it, and they are briefly defined. The space thus gained has been devoted to explanatory matter, such as the causes, symptoms, and treatment of diseases, an outline of the structure and functions of the more important organs, and an account of the action and therapeutic uses of each drug and of all the preparations of it official in the latest editions of the pharmacopœias of the United States, Great Britain, and Germany.

The subjects of *Bacteria* and *Fungi* are treated in a clear and succinct way by means of a tabular view giving their names, origin, and morphological characters, the temperature at which they flourish, and their properties.

This table is followed by a list of the diseases caused by *Bacteria*. A tabular treatment of arteries, muscles, nerves, canals, and certain other subjects has also been adopted.

The inclusion of this encyclopædic information constitutes a useful, though not, as the author says in his preface, a characteristic feature of the work.

Strict alphabetical order has been practically followed in the major headings, but alphabetical has been made subservient to logical order in the subheadings.

While one appreciates the author's consideration for persons unfamiliar with Greek, as shown in his printing the original Greek words in Italics, it is an open question whether the memory of persons unacquainted with Greek may be sufficiently impressed by words in an unknown language to compensate for this sacrifice of literary *tenue*.

Discretion has been shown in deciding disputed points of spelling. The best usage, regardless of analogy, has been adopted as the standard. In cases of variation in good usage and conflict of authorities, that orthography has been adopted that seemed most in harmony with the derivation of the word and with analogy. *Anthelminthic* has been preferred to *anthelmintic*, and *chorioid* to *choroid*, but *thyreoid* has not been substituted for *thyroid*.

The scheme of pronunciation and accentuation seems to us unsatisfactory. For instance, why should the author seek to differentiate the sounds of a in *at* and a in *man*, representing the sound of the latter by æ?

We find *accoucheur*, although considered as a French word not anglicized, accented ak'oo-shur', yet a man of the author's attainments must surely know that the beloved ideal of France, equality, manifests itself even in the laws of her language, and that every word constitutes a little democracy in which each syllable possesses equal rights.

BOOKS, ETC., RECEIVED.

A Text-book of Physiological Chemistry. By Olof Hammarsten, Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized Translation from the Second Swedish Edition and from the Author's enlarged and revised German Edition. By John A. Mandel, Assistant to the Chair of Chemistry, etc., in the Bellevue Hospital Medical College and in the College of the City of New York. New York: John Wiley & Sons, 1893. Pp. x-511. [Price, \$4.]

Manual of Bacteriology for Practitioners and Students, with Especial Reference to Practical Methods. By Dr. S. L. Schenk, Professor Extraordinary in the University of Vienna Translated from the German (by the Author's permission) with an Appendix by W. R. Dawson, B. A., M. D., University of Dublin, etc. With One Hundred Illustrations, partly colored. London and New York: Longmans, Green, & Co., 1893. Pp. xiv-310. [Price, \$3.]

Information for Nurses in Home and Hospital. By Martin W. Curran, Graduate of the Mills Training School, Bellevue

Hospital, New York City. Illustrated. New York: J. H. Vall & Co. Pp. xvi-333. [Price, \$1.50.]

An Outline of the Embryology of the Eye. With Illustrations from Original Pen Drawings by the Author. By Ward A. Holden, A. M., M. D., Assistant Surgeon, New York Ophthalmic and Aural Institute, and Clinical Assistant, Vanderbilt Clinic. New York and London: G. P. Putnam's Sons, 1893. Pp. 69. [Price, 75 cents.]

Asiatic Cholera: its History, Pathology, and Modern Treatment. By A. J. Wall, M. D., Fellow of the Royal College of Surgeons of England, and of the Medical Staff of H. M. Indian Army (Retired List). London: H. K. Lewis, 1893. Pp. vi-194.

The Cholera Epidemic of 1892 in the Russian Empire. With Notes upon Treatment and Methods of Disinfection in Cholera, and a Short Account of the Conference on Cholera held in St. Petersburg in December, 1892. By Frank Clemow, M. D. Edinburgh, Member of the Epidemiological Society of London, etc. London and New York: Longmans, Green, & Co., 1893. Pp. xii-123. [Price, \$1.75.]

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New Inventions, etc.

AN ASEPTIC NASAL SPECULUM.

By EDWARD A. SCOTT, M. D.

In anterior rhinoscopy it is very desirable that we should have instruments that can be cleaned quickly and thoroughly, and that all screws and inaccessible parts be tabooed wherever possible, owing to the fact that in this region we have to deal with syphilitic and diphtheritic lesions, the transmissibility of which is apparent, and therefore the necessity of instruments of the cleanest kind, and if possible without angles or places liable to retain anything, no matter what its nature.



The accompanying cut shows a nasal speculum that meets these requirements in every sense, as there is no place that can in any way afford shelter to anything of any kind.

The disadjustment of the instrument consists in simply pressing and then turning the retaining spring, after which the two handles are easily unlocked by approximation; and for readjustment the reverse process only is necessary.

Miscellany.

Long-continued Fevers in Louisiana.—At a recent meeting of the Orleans Parish, Louisiana, Medical Society, Dr. Martin read a paper on this subject. He desired to prompt a discussion on a subject which, though not entirely new to the society, was, he believed, most deserving of consideration. He had had to cope recently with a type of fever foreign to any represented in our text-books. From older practitioners he learned that these slow fevers of Louisiana, which resisted all

forms of treatment and which were sometimes more aggravated than benefited by quinine, were of recent origin in the State. With the many forms of malarial fever we were thoroughly conversant, though it was his belief that the word "malaria" was too often used to supply a want in the absence of a diagnosis. In his own brief experience he had known a case of abscess of the liver to be diagnosed and treated for six weeks as one of malarial remittent fever. Also a case of pelvic cellulitis, notwithstanding the local pain, had been diagnosed as malarial. In such cases, however, a correct solution of the case was generally arrived at before any serious trouble arose. But an error of this kind in the diagnosis of typhoid fever would, at least in his hands, have proved fatal. We should bear in mind that, notwithstanding the teachings of our professors, typhoid fever did exist in this community, and to such an extent that it was time for us to eradicate from our minds old prejudices so thoroughly instilled in past years, for there could no longer be a doubt of its existence, and we should be prepared to meet it at any time.

Was it not possible that many of the so-called cases of typho-malarial fever were modified forms of typhoid? Might not climatic influences have moderated the disease, for it was certain that few, if any, typical cases had ever originated in the city? Malarial and typhoid fevers were distant forms and easily diagnosed, making the treatment clear. Another form of continued fever existed, so different in its origin, in its symptoms, and in its cause from either of these two forms, that he had deemed it his duty to introduce the subject and to ask the members to give the matter their time and consideration. This fever, he had observed, was usually ushered in without any premonitory symptoms. The patient usually complained of feeling dull; the tongue might or might not be coated; the bowels were costive, and loss of appetite ensued; sometimes there were nausea and slight elevation of temperature, but seldom any functional disturbance. The temperature would vary from 99° to 103°, and the fever would continue from three to nine weeks. Patients were not greatly exhausted by the fever and were sometimes able to keep about their work. One patient whom he had had under treatment, a robust person, had never been compelled to lie down during the day, but had spent the time in a large armchair. The fever had lasted ten weeks. In this case he believed its long continuance had been partly due to malnutrition. Nausea had complicated the case, and the question of treatment had become a serious problem until he had had recourse to raw eggs and sherry. This had constituted the nourishment during the day, the patient having taken as many as half a dozen eggs in twelve hours. At night the author had given mullied milk, which had proved a soothing and nutritious beverage. Through the entire course of the illness he had been at a loss to detect any one symptom sufficiently marked to point to a diagnosis. If malarial, it had not been typical in appearance.

For some time he had been inclined to believe it septic, but a most careful examination of every organ in the body, repeated several times, had failed to substantiate this belief. As regarded treatment, he had employed every form known to science without success. Quinine was inert, and antipyretics gave but temporary relief. The case would run its course and must be treated symptomatically. His method of managing these cases had always been purely symptomatic, not expectant—to relieve pain, regulate the bowels, reduce the temperature, and tempt the appetite.

If there were any present whose misfortune it had been to meet with such cases, he trusted the results had been more gratifying, and that they had settled upon a diagnosis and a formulated plan of treatment.

Original Communications.

A STUDY OF

THE LEUCOCYTOSIS OF LOBAR PNEUMONIA.

By JAMES EWING, M.D.,

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DURING the past few years the subject of leucocytosis has been rapidly growing in interest. It has long been known that in certain conditions, both physiological and pathological, the number of leucocytes in the blood rises considerably above the normal limit—eight thousand to the cubic millimetre. Only recently, however, has this phenomenon received any systematic study, and its practical importance been recognized.

At present the extent of our clinical knowledge may be briefly summarized as follows:

During digestion and in pregnancy there is a moderate physiological increase in the number of leucocytes in the blood.

In many pathological conditions, either cachectic or febrile, a constant and considerable leucocytosis has been demonstrated. The principal cachectic conditions producing leucocytosis are three in number: 1. The acute anæmia following hæmorrhage. 2. The chronic anæmia of diseases of the blood and of malignant neoplasms. 3. The condition of the blood before death, giving an "ante-mortem" leucocytosis.

Finally, there is the leucocytosis of inflammatory conditions, which is a regular accompaniment of many febrile diseases. Of these may be mentioned lobar pneumonia, inflammations of serous membranes, meningitis, septicæmia, acute articular rheumatism, scarlatina, diphtheria. Measles, typhoid fever, and pulmonary tuberculosis have been shown to be important exceptions in this class. In typhoid fever, the number of leucocytes is regularly subnormal, while in phthisis it is usually absent or inconspicuous.

The leucocytosis of lobar pneumonia has received more attention than that of any other febrile condition. Its course during the disease has been carefully followed in sixteen cases recently reported by Laehr. Its relation has been noted to the height of the fever, to the extent of the pulmonary lesion, to the amount of poison generated by the disease, and to the reaction of the system. Some have claimed that the degree of leucocytosis follows exactly the extent of the local lesion; others, that it is regulated by the amount of poison generated and by the character of the systemic reaction excited by the disease. Its relation, also, to prognosis has been considered and attempts made to base a favorable prognosis on a high degree of leucocytosis. Von Jaksch* has observed that cases of lobar pneumonia unaccompanied by leucocytosis are of unfavorable prognosis. Laehr† reports a case in

which a relapse was heralded by a recurrence of leucocytosis after its disappearance with the crisis. Laehr and Rieder* believe that the examination of the blood is of great value in the diagnosis between lobar pneumonia and typhoid fever. The number of leucocytes in the blood in phthisis has been found so variable that no definite rules have been established as to the use of the blood count in distinguishing this disease from pneumonia.

In order to test the truth of the statement that a large increase in the number of leucocytes in the blood offers a favorable prognosis in lobar pneumonia, the writer examined the blood in a hundred and one cases of this disease occurring in Roosevelt Hospital during the first five months of the year 1893. In the belief that the determination of leucocytosis could hardly become a matter of general utility if a lengthy series of examinations were required in each case, the observations were limited to a single examination made during the height of the disease, which is a practical procedure. Laehr's investigations, in which the entire course of the leucocytosis was followed, show that a single examination made at such a time gives an accurate indication of the leucocytosis in a case of pneumonia.

Technique.—The instrument usually employed in counting white blood cells is known as the Thoma-Zeiss leucocytometer. In the method recommended for this instrument the blood is treated with a three-tenths-per-cent. aqueous solution of acetic acid, which destroys the red blood cells, leaving only the white. In using this method several disadvantages became apparent. The quantity of blood required is inconveniently large. Acetic acid obscures the outlines of the leucocytes and it is often difficult to distinguish them from débris left by the red blood cells. The leucocytes become very cohesive and appear in the counting chamber in considerable masses, in spite of persistent efforts to secure the even distribution necessary for an accurate count. This method was therefore discarded and the ordinary instrument for counting red blood cells (the Thoma Zeiss) was used in all the cases.

The examination of the blood was made regularly between the hours of 9 and 12 P. M. The blood was drawn from the finger tip by a deep fine puncture, which usually causes a copious flow. It was thoroughly mixed in the pipette with a three-per-cent. salt solution colored deeply by gentian violet (about one per cent. of a saturated alcoholic solution). The drop received into the counting chamber was rejected unless it showed an even distribution of red cells. The first drop, after the leucocytes had been estimated, was replaced always by a second, and the second often by a third, and the average of the two or three counts was finally accepted.

The blood was examined in this way in about a hundred and fifteen cases of febrile disorder. They were principally cases of lobar pneumonia; but this number includes several cases of typhoid fever, typhus fever, acute

* Von Jaksch. *Clinical Diagnosis*.

† Laehr. Ueber das Auftreten von Leucocytose bei croupösen Pneumonien, *Berliner klinische Wochenschrift*, Nos. 36, 37, 1893.

* Rieder. *Beiträge zur Kenntniss der Leucocytose*.

phthisis, empyema, and one case of actinomycosis of the lung. Several cases in which lobar pneumonia was wrongly suspected to exist and no leucocytosis found, and some

cases of chronic phthisis in which the usual variable result was obtained, are not reported.

The results are presented in the following tables:

Lobar Pneumonia.

No.	Name.	Age.	Location of lesion.	Highest rectal temperature.	CHARACTER OF		Complications.	Outcome.	Leucocytes, per c. mm.
					Infection.	Reaction.			
1	Meyers.	35	R. u.*	106-2	Severe.	Vigorous.		L.† 14th day.	23,000
2	Hitch.	72	R. l.	104-4	Mild.	Slight.	Cellulitis.	L. 5th day.	11,000
3	Maher.	28	R. l.	104-2	Moderate.	Moderate.		L. 6th day.	20,000
4	Locklin.	20	R. u.	105-2	Severe.	Vigorous.		C. 7th day.	20,000
5	Smith.	17	3d R., L. l.	105-8	"	"		C. 10th day.	27,000
6	Kirby.	11	R. u. and l., L. l.	105-0	"	"	Nephritis.	D. 5th day.	30,500
7	Lloyd.	33	R. u.	104-4	"	Slight.	Pericarditis.	D. 5th day.	15,000
8	Gibson.	38	R. u. and m.	104-0	"	Moderate.	Nephritis.	D. 8th day.	23,000
9	Parker.	23	R. u.	104-8	"	Slight.	Peritonitis.	D. 7th day.	14,000
10	McCord.	40	R. u. and l.	106-8	"	Vigorous.		L. 8th day.	27,000
11	McGuire.	32	R. u. and l.	104-4	Moderate.	Moderate.		L. 10th day.	18,000
12	Rosa.	36	R. l.	105-0	Severe.	Vigorous.	Nephritis.	D. 2d day.	31,000
13	Hanley.	35	3d R.	105-4	"	"		L. 8th day.	31,500
14	Coyne.	36	Both l.	106-8	"	"	Alcoholism.	D. 4th day.	23,000
15	Louden.	39	R. m. and l.	104-0	"	"	Pericarditis.	D. 6th day.	24,000
16	Brown.	21	L. l.	103-8	Mild.	Slight.		L. 8th day.	15,000
17	McCarthy.	20	L. l.	103-2	"	"		C. 7th day.	15,000
18	Boland.	49	3d R.	105-4	Severe.	Vigorous.	Alcoholism.	L. 9th day.	17,000
19	Enus.	39	R. u.	105-4	"	Slight.	Alcoholism.	D. 5th day.	6,000
20	Mortimer.	18	R. u. and l., L. l.	105-2	"	Vigorous.	Pleurisy.	L. 14th day.	21,000
21	Davin.	28	L. u.	107-0	"	Slight.	Pericarditis.	D. 8th day.	6,000
22	Cockrane.	62	3d R.	103-0	Moderate.	Moderate.		D. 10th day.	23,000
23	McAleese.	20	R. u.	104-2	"	"		C. 8th day.	14,500
24	O'Connor.	60	L. l.	103-8	"	"	Pleurisy.	L. 9th day.	25,000
25	Clark.	72	L. u.	103-8	Mild.	Slight.		L. 6th day.	18,000
26	Lynch.	48	R. u. and l.	104-6	Moderate.	"	Alcoholism.	D. 6th day.	13,000
27	Smith.	61	R. l.	104-8	Severe.	"	Phthisis.	D. 8th day.	4,000
28	White.	28	3d R.	105-4	"	Vigorous.	Nephritis.	D. 7th day.	23,000
29	Coyle.	30	R. u.	105-6	"	Moderate.		D. 7th day.	17,000
30	Guttenberg.	21	L. l.	103-2	Moderate.	"	Epilepsy.	D. 3d day.	21,000
31	Lyons.	32	R. u.	104-6	Severe.	Vigorous.		C. 7th day.	28,000
32	Mayer.	65	Both l.	105-0	"	"		D. 11th day.	22,000
33	Byrnes.	29	R. u. and l.	104-2	Moderate.	Moderate.		L. 9th day.	42,000
34	Stack.	53	L. l.	105-0	Severe.	Vigorous.		C. 10th day.	26,000
35	Vick.	21	Both l.	103-6	Moderate.	Moderate.		L. 14th day.	26,000
36	Aslar.	20	L. l.	104-4	"	"		C. 6th day.	14,000
37	Max.	37	R. u.	103-0	Severe.	Slight.		D. (?)	7,000
38	Havens.	39	3d R.	105-8	"	Vigorous.	Alcoholism.	D. 7th day.	23,500
39	Reilly.	45	R. l.	105-4	"	"		C. 7th day.	40,500
40	Colton.	45	R. m.	103-6	Moderate.	Moderate.		L. 5th day.	31,000
41	Haywood.	37	R. u. and l.	104-0	"	"		L. 7th day.	17,000
42	Ormsby.	20	3d R.	104-0	Severe.	"		D. 6th day.	14,000
43	Geier.	20	R. u. and l.	105-8	"	Vigorous.		C. 8th day.	31,000
44	Hanks.	23	L. l.	106-2	"	"		L. 11th day.	36,000
45	Tallaksen.	42	Both l.	104-0	Moderate.	Moderate.	Faecal impaction.	D. 5th day.	20,500
46	Butler.	38	R. u. and m.	105-0	Severe.	Slight.	Alcoholism.	D. 5th day.	6,000
47	Edgar.	35	L. l.	106-0	"	Vigorous.		L. 7th day.	34,000
48	Regan.	30	Entire lung.	104-0	"	"		L. 18th day.	32,000
49	Serle.	52	R. l. and m.	103-0	"	Slight.		D. 6th day.	19,000
50	Rosch.	34	L. u.	106-0	"	Vigorous.		L. 11th day.	21,000
51	Fox.	32	R. u.	103-8	Mild.	Slight.		L. 5th day.	18,000
52	McGar.	37	L. l.	104-0	Moderate.	Moderate.	Pericarditis.	L. 12th day.	14,000
53	Feeley.	24	L. l.	103-8	"	"	Gangrene.	L. 15th day.	38,000
54	Chambers.	33	L. u. and l.	106-0	Severe.	Vigorous.	Alcoholism.	D. 13th day.	29,000
55	Hanafy.	28	R. u.	104-2	Mild.	Slight.		C. 3d day.	13,500
56	Lundin.	34	L. u. and l.	105-8	Severe.	Vigorous.		L. 9th day.	21,000
57	Port.	22	R. l.	106-8	"	"		L. 10th day.	24,000
58	Murphy.	32	R. u.	105-0	"	"		L. 7th day.	23,500
59	Feehey.	51	L. l.	103-4	Mild.	Slight.		L. 7th day.	19,000
60	Keenan.	27	R. l.	106-0	Severe.	Vigorous.		D. 7th day.	24,000
61	Albony.	21	L. l.	104-8	Moderate.	Moderate.		L. 11th day.	15,000
62	Holden.	19	R. u.	105-8	Severe.	Vigorous.	Pleurisy.	L. 9th day.	43,000
63	Kearney.	54	L. l.	102-8	Mild.	Slight.		C. 8th day.	16,000
64	Loomis.	40	R. l.	105-0	Severe.	Vigorous.		L. 12th day.	39,000
65	Weit.	3d R.		105-0	"	"		D. 5th day.	26,000
66	Mulvey.	40	L. l.	104-8	Moderate.	Moderate.	Alcoholism.	D. 7th day.	19,000
67	Stokes.	24	Both l.	105-0	Severe.	Vigorous.		L. 6th day.	30,500
68	Nelson.	28	R. l.	102-4	Mild.	Slight.		L. 15th day.	23,000
69	Coombs.	39	R. u. and l.	105-0	Severe.	Vigorous.		D. 9th day.	33,000
70	Mosher.	25	L. l.	101-0	Moderate.	Moderate.		L. 8th day.	21,500
71	McName.	27	R. l.	105-6	Severe.	Vigorous.		L. 7th day.	41,000
72	Cook.	26	L. l.	106-4	"	"	Alcoholism.	D. 4th day.	26,000
73	Rasher.	27	R. l.	105-0	"	"		L. 4th day.	38,000
74	Woods.	31	Both l., R. u.	106-0	"	"		D. 8th day.	26,500

* R. = Right side. L. = Left side. u. = upper lobe. m. = middle lobe. l. = lower lobe. † L. = Lysis. C. = Crisis. D. = Death.

Labor Pneumonia.—(Continued.)

No.	Name.	Age.	Location of lesion.	Highest rectal temperature.	CHARACTER OF		Complications.	Outcome.	Leucocytes, per c. mm.
					Infection.	Reaction.			
75	Lathrop.	45	L. l.	Degrees F. 103.2	Moderate.	Moderate.		L. 18th day.	28,000
76	Welsh.	29	3d R.	103.4	"	"		L. 7th day.	22,000
77	McGown.	42	L. l.	103.0	Mild.	Slight.		L. 9th day.	11,000
78	McLaughlin.	55	R. l.	104.8	Severe.	Vigorous.		D. 6th day.	55,000
79	Mumane.	28	Both l.	104.0	Moderate.	Moderate.	Rheumatism, pericarditis.	L. 25th day.	22,000
80	Ginty.	37	R. l.	104.0	"	"	Nephritis.	C. 3d day.	24,500
81	Hastings.	33	R. l.	105.0	Severe.	Vigorous.	Alcoholism.	L. 7th day.	23,500
82	Stane.	20	Both l.	103.0	"	"	Endocarditis.	D. 6th day.	34,000
83	Nolan.	21	Both l.	104.4	"	"	Rheumatism, pericarditis.	L. 10th day.	32,500
84	McCrane.	28	L. l.	103.4	Mild.	Slight.	"	L. 17th day.	12,500
85	Haywood.	32	R. l.	103.4	"	"	Rheumatism.	L. 8th day.	14,500
86	Fox.	29	R. l.	103.8	"	"	"	L. 7th day.	18,000
87	Bram.	27	Both l.	105.0	Severe.	Vigorous.	"	L. 8th day.	23,000
88	Glavin.	45	L. l.	103.8	Mild.	Slight.	Nephritis.	L. (?)	19,000
89	McShea.	41	R. l.	104.6	Severe.	"	"	D. 4th day.	12,000
90	Barry.	24	R. l.	105.0	"	"	Typhoid, peritonitis.	D. 3d day.	5,000
91	Hackett.	51	R. l.	104.0	Moderate.	Moderate.	Phthisis.	D. (?)	21,000
92	Boyle.	35	R. u.	104.6	Severe.	Slight.	Gangrene.	D. 5th day.	10,500
93	Lear.	34	R. u. and l.	104.6	"	Vigorous.	"	L. 7th day.	56,000
94	Fox.	30	L. l.	104.0	Moderate.	Moderate.	"	C. 6th day.	22,500
95	Keen.	31	R. u. and l.	106.0	Severe.	Vigorous.	"	L. 20th day.	26,000
96	Kelly.	8	L. l.	105.0	"	"	Meningitis.	D. 6th day.	47,000
97	Riley.	33	R. l.	105.2	"	"	"	L. 7th day.	25,500
98	Brown.	27	L. l.	103.8	Mild.	Slight.	"	L. 6th day.	16,000
99	Bonner.	29	R. l.	105.4	Severe.	Vigorous.	Alcoholism.	L. 8th day.	26,000
100	Eustace.	20	R. l.	105.0	"	"	"	C. 8th day.	34,000
101	Holden.	21	3d R., L. l.	105.6	"	Slight.	Pericarditis.	D. 5th day.	14,500

Miscellaneous.

No.	Name.	Age.	Diagnosis.	Leucocytes.
102	Andrews.	18	Acute phthisis.	2,000
103	Dessar.	21	" "	11,000
104	Stark.	28	" "	12,000
105	Gram.	38	" "	9,000
106	Minton.	36	Empyema.	20,000
107	Fax.	33	"	22,500
108	Gavin.	22	Typhoid fever.	8,000
109	Pearson.	41	" "	6,000
110	Barry.	24	" "	5,000
111	Byrnes.	42	Typhus fever.	5,000
112	Black.	23	" "	8,000
113	Sadler.	25	" "	9,000
114	Morrissey.	28	" "	7,000
115	Hillier.	34	Actinomycosis of lung.	21,500

Relation of Leucocytosis in Pneumonia to the Extent of the Pulmonary Lesion.—Limbeck, Pick, and others call attention to the fact that the degree of leucocytosis bears a very constant relation to the extent of the local lesion, and it is both asserted and denied that the extent of the lesion determines the grade of leucocytosis. An examination of the cases under discussion seems in general to show that the extent of the lesion influences considerably the number of leucocytes in the blood. In sixty-three cases in which one lobe was involved the average number of leucocytes was 20,000.

In twenty-four cases, involving two lobes, the average was 22,700. In twelve cases, involving three lobes, the average rose to 25,000.

In one case in which four lobes were affected the number was 27,000; and in Case 48, in which all the lobes were successively attacked, the number of leucocytes reached 32,000.

In the entire series, therefore, the number of leucocytes increases regularly with the number of lobes affected. On the other hand, the seven highest numbers observed accom-

panied the involvement of a single lobe. Hence the above assertion, while true of a series of cases, is an unsafe rule to apply to individuals. Further, in ten cases in which the lesion extended to the opposite pleura, the pericardium, or the peritonæum, the average degree of leucocytosis was relatively low (17,000).

Relation of Leucocytosis in Pneumonia to the Amount of Poison generated and to the Systemic Reaction.—That the prognosis of pneumonia depends upon the amount of poison generated and the vigor of the systemic reaction more than upon the extent of lung involved is a fundamental clinical rule. That the degree of leucocytosis in pneumonia also depends upon these two factors more than upon the extent of the lesion can be demonstrated, it is believed, from the foregoing cases.

Where the character of the infection was very mild the number of leucocytes was often correspondingly low, but since thirty-five per cent. of the fatal cases showed very slight leucocytosis, the amount of poison generated can hardly be considered a regular factor in determining the degree of leucocytosis.

In order to draw some conclusion about the relation of leucocytosis to systemic reaction, the cases were carefully divided, according to their clinical aspect, into three groups. The reaction of the system was judged as *vigorous* when the rectal temperature reached 105° or higher; when the pulse, while tumultuous, retained its force until the anatomical lesion was well advanced; when the general condition at the height of the disease was markedly sthenic; and when a fatal issue seemed not to be inevitable, but to result either from some complication or after a doubtful course.

The systemic reaction was considered *moderate* when the temperature was between 104° and 105°, while the other symptoms were less severe.

In other cases the reaction of the system was regarded as *slight*, with a temperature never reaching 104° and with moderate prostration. The reaction was regarded as slight or deficient also when the pulse began to fail very early; when the disease throughout was "badly borne," pursuing an asthenic, often rapidly fatal course.

In forty-seven cases, marked by a severe and powerful systemic reaction, the average number of leucocytes was 31,000. In twenty-seven moderate cases the average was 20,000. In twenty-seven cases, characterized by slight and deficient systemic reaction, the number of leucocytes averaged 9,000. Of eleven asthenic cases, placed with the last division, there was in six a decrease in the number of leucocytes.

The Diagnostic Value of Leucocytosis: Pneumonia vs. Typhoid Fever.—While it has been known for some years that there is no leucocytosis in typhoid fever, it is only within the past two years that our knowledge of the leucocytosis of lobar pneumonia has warranted any positive statement as to its value in the diagnosis of the latter disease. That the examination of the blood may be decisive evidence in distinguishing obscure forms of pneumonia from typhoid fever, the following cases may show. On account of the uncertain estimate then placed on such evidence, the blood count did not influence the diagnosis in any of the cases.

Eustace (100): Gradual onset with indefinite chill, dry cough, general pains, no dyspnea. Examination of lungs showed mild bronchitis. Abdominal symptoms prominent. Regarded as typhoid fever and persistently bled. Leucocytes, 34,000. Physical signs of pneumonia of right lower lobe began to appear on the tenth day—the day of defervescence by crisis.

Barry (110): Chill, cough, dyspnea, general chest pains. At bases of both chests, dullness, high-pitched breathing, a few moist râles. Pronounced a case of pneumonia. Leucocytes, 5,000. Two days later the lungs had cleared and typhoid symptoms were apparent. Relapse on the twenty-ninth day. Perforation on the thirty-seventh day. Pneumonia of right lower lobe on the fortieth day (90). Leucocytes, 5,000. Death on the forty-third day. This is one of the cases in which lobar pneumonia was unaccompanied by leucocytosis. It was also an excellent illustration of entire failure of systemic reaction, the pneumonia being masked by abdominal symptoms and only discovered by the routine examination of the chest.

Pearson (109): Chills, general chest pains, dry cough, no abdominal symptoms. General bronchitis, with diminished breathing at base of left chest. Regarded as pneumonia. Leucocytes, 6,000. Four days later the lungs had cleared, abdominal symptoms supervened, and the temperature ran a typical typhoid course.

Gavin (108): Chill, cough, subjective dyspnea. Few moist râles, possibly slight dullness, high-pitched voice and breathing at right apex. No abdominal symptoms. Regarded as pneumonia, but careful daily examination failed to locate it. Leucocytes, 8,000. Five days later, rose spots, diarrhoea, and further typical typhoid course.

Pneumonia vs. Typhus Fever.—The writer has been unable to find reported any examinations of the blood in typhus fever. Four such cases were encountered during the winter, and in none was there found any increase in the number of leucocytes. It is believed, therefore, that the examination of the blood is probably of equal value in the more difficult diagnosis between lobar pneumonia and typhus fever.

Byrnes (111): Chill, slight stitch in right axilla (?), febrile dyspnea, muco-purulent sputum. Slight dullness, diminished breathing, a few moist râles at bases of both chests, more marked at right. Regarded as certainly pneumonia. Leucocytes, 5,000. Physical signs were found not to advance satisfactorily after very careful examination twice daily, and on fourth day after admission typhus eruption appeared.

Black (112): Chill, stitch in side, febrile dyspnea. Slight dullness, diminished breathing, and moist râles at bases of both chests, especially the left. Regarded as pneumonia. Leucocytes, 8,000. Three days later bronchitis had cleared up and typhus eruption appeared.

McCord (10): Sent to hospital as a suspicious case of typhus fever. Three days before had had slight chill; no chest pains, no expectoration, no dyspnea. Pulmonary signs negative. Typhus and pneumonia were regarded as possibilities. Leucocytes, 27,000. No definite physical signs of pneumonia developed till after eight days of remittent pyrexia, when the case defervescenced by rapid lysis.

In two other cases of typhus fever (113, 114) no leucocytosis was found.

Pneumonia vs. Tuberculosis.—As has been said above, the number of leucocytes in the blood in pulmonary tuberculosis has been found so variable that no definite opinion has been reached as to the value of the blood count in distinguishing between lobar pneumonia and phthisis. Leucocytosis, however, has been shown to occur only in a minority of the cases of tubercular inflammation of the lung, and in these the number of leucocytes seldom reaches 15,000. Possibly the explanation of this occasional leucocytosis may be found in the first three cases next cited, which, at the time of the examination, were acute processes without suppurating cavities. In the writer's observation, while moderate leucocytosis has been found in chronic phthisis with suppurating cavities, yet in those cases of acute phthisis which clinically resemble lobar pneumonia the white blood cells have shown only the very slightest increase. It is possible also that the leucocytosis reported in some cases of phthisis may be due to chronic anemia, to a circumscribed pleurisy, or to a moderate lobar pneumonia, which frequently complicate the disease (as was shown by autopsy in Case 91).

The absence of leucocytosis may therefore be considered as valuable evidence in a decision between acute phthisis and all forms of lobar pneumonia, except the very mild and the severe asthenic cases. It was found to be so in the following instances:

Andrews (102): Professed to have been sick a week with chill, sudden pain in left side, cough, muco-purulent sputum, in which no tubercle bacilli were found. Tempera-

ture, 106°. Consolidation of left upper lobe. Regarded as certainly pneumonia. Leucocytes, 2,000. Lesion rapidly extended. Death in fifth week. Autopsy.

Dessar (103): Ill fourteen days, with usual history and signs of pneumonia of left lower lobe. Fairly typical rusty sputum in which no tubercle bacilli were found. Leucocytes, 10,000. Death on the twenty-seventh day. Acute phthisis, cavity in lower lobe, previously supposed to be gangrene, from fetid odor and apparent absence of bacilli.

Gram (105): A patient suffering from chronic Bright's disease and "bronchitis." Fever suddenly rose, cough became worse, with dyspnoea, stitch in left side. Signs of slight consolidation now found in front of the left upper lobe. Regarded as pneumonia. Leucocytes, 9,000. After ten days tubercle bacilli were finally found in the sputum.

Stark (104): Acute illness of few days' standing, with usual history of a moderately severe pneumonia of right upper lobe. Leucocytes, 12,000. Bacilli afterward found in the sputum.

Keen (95): Acute illness of ten days' duration. Previous history favored tuberculosis. General bronchitis; consolidation of most of right lung. Treated as phthisis. Leucocytes, 26,000. Repeated examination failed to find tubercle bacilli in the sputum, and recovery followed after tardy resolution.

Obscure Forms of Pneumonia.—The examination of the blood gave correct evidence in cases of obscure pneumonia when physical signs and other symptoms were indefinite.

Glavin (48): Suffering from chronic nephritis. Had fever, cough, muco-purulent sputum. Some indefinite signs over angle of left scapula raised a suspicion of pneumonia. These signs cleared up in a few days, and the idea of pneumonia was abandoned. The patient died in uræmia, and remains of pneumonia were found in the above location. Leucocytes, 19,000.

Ginty (80): A case of nephritis. One morning awoke with severe chill and pain in right axilla; temperature, 104°. Pulmonary signs insufficient for diagnosis. Leucocytes, 24,500. Disappearance of urinary chlorides. Temperature fell by crisis on the third day.

Pneumonia vs. Empyema and Actinomycosis of the Lung.—In two fatal cases of empyema and in one case of actinomycosis of the lung the leucocytes were considerably increased, and the examination of the blood was of no value in distinguishing the diseases from lobar pneumonia.

The Prognostic Value of Leucocytosis in Pneumonia.—Of one hundred and one cases of pneumonia, thirty seven were fatal. In the fatal cases the average number of leucocytes found was nineteen thousand five hundred; or from these thirty-seven, selecting thirteen cases occurring in fairly robust adults, the average may be brought as low as seventeen thousand. In sixty-four recoveries the average was twenty-four thousand one hundred. Evidently the difference between the average leucocytosis of a favorable and that of a fatal case is too slight to warrant strict confidence in its prognostic value. Not only are the averages close, but many of the fatal cases showed a very marked leucocytosis. It may be said, therefore, that a considerable leucocytosis

is no indication that the case will pursue a favorable course. Very accurate predictions, however, may be made from the examination of the blood when the relative value of such evidence is carefully estimated; for, of the fatal cases, above mentioned, attended with marked leucocytosis, thirteen may be explained by serious complications, such as nephritis, alcoholism, pericarditis, endocarditis, and old age. In fact, in only three of the fatal cases did a marked leucocytosis, when taken in apparently proper connection with other features of the case, point to a wrong conclusion. In several instances where recovery followed, a high leucocytosis was found at a time when the condition was considered hopeless.

An examination of the deaths will show that in severe forms of lobar pneumonia a slight leucocytosis is a very unfavorable sign. In six fatal cases the number of leucocytes was subnormal. In eleven fatal cases the average number was nine thousand. Not one case recovered in which the disease was of even moderate severity when the number of leucocytes fell below fourteen thousand. In several instances, again, a slight leucocytosis seemed at the time the only unfavorable prognostic sign in cases ending fatally.

Summary.—In most cases of lobar pneumonia there is a marked leucocytosis.

The leucocytosis of lobar pneumonia may be absent or inconsiderable—(a) in very mild cases; (b) in very severe cases in which the reaction of the system is slight.

The degree of leucocytosis in pneumonia is proportional, on the average, to the extent of the local lesion, but it follows much more exactly the grade of systemic reaction to the poison generated.

In cases of acute tubercular inflammation of the lung, clinically resembling lobar pneumonia, there was no leucocytosis.

In pulmonary phthisis complicated by suppurating cavities, exudative pneumonia, pleurisy, or chronic anæmia, there was usually a moderate leucocytosis.

In typhoid and typhus fevers there was no leucocytosis.

In empyema and actinomycosis of the lung there was considerable leucocytosis.

In obscure forms of lobar pneumonia, in which ordinary physical signs and rational symptoms are insufficient for diagnosis, the examination of the blood may give useful evidence.

Well-marked leucocytosis is a valuable aid in the differential diagnosis between lobar pneumonia and typhoid or typhus fevers.

In acute apical lesions the absence of leucocytosis is decisive evidence in favor of tuberculosis, except when dealing with a lobar pneumonia which is very mild, or whose course is asthenic.

The examination of the blood is of no value in the diagnosis between lobar pneumonia and empyema or actinomycosis of the lung.

Well-marked leucocytosis in lobar pneumonia, while in itself a favorable sign, does not assure that the disease will pursue a favorable course, but indicates usually a severe infection.

¹ A moderately low degree of leucocytosis in severe cases of lobar pneumonia is an extremely unfavorable sign.

In severe cases of lobar pneumonia absence of leucocytosis indicates, with rare exceptions, that the disease will prove fatal.

Most cases of lobar pneumonia in which the lesion extends to the pericardium and peritonæum are attended with slight leucocytosis.

260 WEST FIFTY-SEVENTH STREET.

RECENT STUDIES IN NAUPATHIA, OR SEASICKNESS.

SYMPTOMATOLOGY, DIAGNOSIS, PATHOGENESIS,
AND TREATMENT BY A NEW AND EFFICACIOUS METHOD.

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(Continued from page 695.)

IV. *Ætiology and Pathogenesis.*—A. *Part based upon Observation and Experience.*—Let us briefly examine the few remote predisposing causes of naupathia. In the first place, it is not at all necessary to travel upon water to be seasick, or at least to exhibit the symptom group called seasickness when encountered on water. There are persons in whom merely the sight of a boat tossed by the waves suffices to render them seasick even while they themselves are standing on dry land. Others are sick on the railway train, in a carriage, even on horseback. The common swing and the merry-go-round possess the well-known property of producing nausea and vomiting in many persons who try these forms of amusement. A ride on a camel or a dromedary also provokes the appearance of this affection in predisposed persons. The nausea, weakness, and lypothymia felt by certain individuals on looking down from the height of a precipice, or of a column, or when they mount near the summit of a high mountain, are indicative of pathological states analogous to seasickness. We see, therefore, that the expression *naupathia*, or seasickness, is too restricted to designate an affection which manifests itself in conditions so varied, and it is desirable that a term more scientific and more general be chosen in medical nomenclature to designate the morbid state in question.

Naupathia can not be considered a microbic disease, as one writer would have it,* who imagined a "marine miasm" to be the cause of the sufferings of travelers on the sea. His hypothesis, however, is not supported by any kind of proof. One can not admit, therefore, that this affection is infectious or contagious, which excludes the possibility of epidemics, properly speaking, of naupathia.

Meteorological conditions have no determined influence in the production of this affection. No age is exempt from it unless it be that of early infancy. At two years of age children may be seasick. The influence of sex is quite evident. It is especially women that are seasick. Below the age of puberty, however, this condition loses its influence. Young girls are not oftener sick than young boys. The

explanation of this peculiarity is found in another part of this treatise.

The temperament of the passenger, his force of will, have really but a slight effect in warding off an attack. A much greater safeguard is the great interest in the voyage itself as felt by a person taking an ocean trip for the first time. The keen enjoyment of the novelty of the unusual surroundings has often kept a person from seasickness who on later voyages was numbered among its victims.

Other conditions favor the development of this trouble. Thus, the smallness of the ship or boat, the situation near either of its extremities where the motion of elevation and descent (pitching) is greatest, disagreeable odors, the sight of dirty kitchen utensils or of unappetizing dishes, and the possession of what is called "a delicate stomach" (although this organ is for nothing in the causation of most cases of seasickness)—all these things, we affirm, have a real ætiological influence.

Likewise the coexistence of certain other morbid states favors the development of naupathia. Thus persons having a catarrhal affection of the digestive tract, and especially those presenting a disease of the circulatory apparatus, are particularly exposed to an attack of seasickness. As an example of the first-named cause we recall the case of a sailor of the Dom Pedro who, in the middle of a voyage of twenty-four days, was ill of a catarrhal gastritis, and after a day or two later presented the characteristic symptoms of naupathia.

Cases of the second group are frequent, and insistence should be made in regard to the active rôle which cardiac affections here play. Valvular and orificial lesions of the heart; dilatation, steatosis, and fatty coating (*surchargé graisseuse*) of this organ, and its hyposthenia from whatever cause, are powerful predisposing causes in the production of this affection. We have seen a very obese lady whose heart beats were rather feeble, without other signs of hyposthenia or of other disease of that organ, and whose pulse tension was below the normal, in whose case one might properly suspect the existence of fatty heart, which lady has never taken a sea voyage without being seasick during the whole passage. Another woman having a pronounced mitral insufficiency suffered excessively from seasickness without getting any relief whatever from treatment that is usually efficacious. These examples could be multiplied, but they are sufficient to show the relation that exists between naupathia and any disease of the circulatory apparatus that destroys the physiological equilibrium of the circulation.

It is by no means necessary, however, that a *lesion* be present in some part of the circulatory apparatus in order that the affection which is under consideration be produced. A *functional perturbation* of the circulation is also adequate to produce it. It thus happens that such a large number of children and young persons of both sexes (who certainly have not all a cardiac or other disease) become sick during the first hours of a voyage, or of a spell of rougher weather than usual. It should be remarked that among the organs of circulation there should be included the sources of *innervation* of the heart and vessels—that is

* Sémanas, 1850.

to say, the crura cerebri (Meynert), the pons, the medulla oblongata, the spinal cord, and the ganglionic system of the great sympathetic, all of which are centers of cardiac or of vaso motor nerves. Therein lies a point of major importance in the therapeutics of naupathia, as will be shown a little further on.

There are, of course, many other states and conditions that predispose to naupathia. They may be summed up in the statement that in general (but not always) the states or the affections that enfeeble the forces of the organism render it apter to be seasick.

It has come to the writer's knowledge that certain individuals who were habitually sick at sea during voyages taken in youth and middle age gradually lost this tendency to seasickness during their advanced years. To what may this immunity be due? From our investigations in seasickness, we are convinced that the true explanation of this immunity is found in the growing inelasticity of the arteries as age advances and in the increasing insensibility of the various organs and tissues to the different excitations which figure as the causes of naupathia.

B. *Theoretical Part.*—The enumeration of the above facts is quite insufficient to satisfy the legitimate desire to know what is, after all, the real and ultimate cause of seasickness. The different causes just mentioned do not explain to us the nature of this trouble, do not give us a glimpse of the bottom of the case. Thus many an attempt has been made to reason out the matter and to discover if possible the pathological process itself and to understand how it is that the voyager, perfectly well one moment, is transformed into a sick person in the short space of a few minutes or a few hours.

There have been many other observers who, even centuries ago, have sought to explain this action of the sea. Hippocrates had his opinion of this also, but the theories of our times are more ingenious, if they are not more satisfactory, than that of this author. Thus Darwin affirms that "seasickness is due to vertigo," which, however, is no explanation at all, for the vertigo is part of the affection, being one of its chief symptoms.

Wollaston, with his "barometric theory" of seasickness, divined something of the truth perhaps; but he does not quite satisfy us.

Pellarin* goes further and says: "Seasickness is essentially determined by the influence exerted upon the circulation of the blood by the movements which the body undergoes and which have for principal effect the lessening of the ascending force of the blood in the aorta and in the arteries springing from the aorta, whence results a hyposthenic state of the brain from anæmia. The insufficient excitation of the cerebral organ immediately determines, by sympathetic channels, contractions of the diaphragm which provoke vomiting, of which the salutary effect is to cause a reflux to the brain of the blood which was lacking." This, we think, is true as far as it goes, but is incomplete and insufficient as an explanation. It confirms, however, our own ideas about the temporary utility of frequent emesis.

Autric* believed he could incriminate the cephalo-spinal liquid. According to him, this liquid would produce a shaking of the brain by the violent flux and reflux which it would make at each movement of the ship—a very ingenious theory, but too fantastical and improbable. It is rather surprising, though, to notice how almost every well-informed writer on naupathia mentions it, some to uphold and defend, some to hold in doubt, but most to repudiate. In verity, how should this beneficent liquid, placed by kindly Nature as a cushion around the central nervous system, become in turn a veritable battering ram to cause such misery on the sea? How could this scanty fluid pass through its narrow channels of communication with volume and force sufficient to produce the shocks or disturbance attributed to it? Compare the quantity of this liquid with the quantity of blood in the brain and spinal cord and observe how little it is; compare the lumina of the connecting passages for the liquid with the open calibers of the turgid blood-vessels, and decide through which class of channels the "flux and reflux" could occur most easily. We do not lose sight of the dynamic difference in the two fluids while making the above statement. One is in active movement while the other is not; both, however, are under a certain degree of pressure. It is more rational, if one wishes to make seasickness due to some lack of equilibrium in the fluids of the encephalon, to attribute it to the blood rather than the cerebro-spinal liquid.

Gillechrist (1774) (‡), Sper, and Larrey have supposed that seasickness was due to cerebral commotion produced by the oscillations of the ship.

According to Kéroden, "the movements of the ship cause disturbance in the play of the diaphragm and of the abdominal organs which are subject to collisions quite suitable to produce the spasmodic state and the convulsions of the stomach. The irritation of the phrenic nerves causes the diaphragm to contract. The ramifications of the pneumogastric and of the trisplanchnic nerves of the semilunar ganglia, likewise subject to these oscillations, react upon the stomach, the intestines, and the whole organism." These notions are not entirely conformable to the teachings of physiology, for the stomach does not play the principal rôle in the act of vomiting, as Magendie has so well demonstrated. Moreover, they do not explain very clearly the pathogenesis of the trouble.

Chapman† has published an opinion contrary to that of Pellarin, cited above. He believes rather in an abnormal afflux of blood to the posterior part of the nervous centers, and especially to those segments of the spinal cord that have relations with the stomach and with the muscles that have to do with vomiting. Still the same idea! They wish to make the stomach guilty of causing seasickness. It may have accomplices, so to speak, but still it is the most to blame. The stomach, nevertheless, has little to do with the production of naupathia.

One author will have it that irregular and insufficient respiration is the cause of seasickness. Therefore he would have his patients practice deep and regular breathing.

* *Comptes rendus de l'Acad. des sciences*, 1847, t. xxiv.

* *Montpellier thesis*, 1868.

† *Functional Diseases of the Stomach*, Part I, London, 1864.

Another believes the cause to lie in a disturbance of the muscular sense. The most far-fetched and pedantically expressed theory of the ultimate cause is that of Rosenbach,* who says: "For the origin of the symptom-complex of seasickness molecular disturbances are to be made responsible." These molecular disturbances (purely hypothetical, for that matter—W. S.) are caused "through intense intramolecular vibration" or shaking due to the motion of the ship. Unfortunately for this theory, the author is not able to derive from it the slightest aid in treating the affection, and the physician and patient are left as helpless as before.

Many American writers, such as the late Dr. Fordyce Barker, the late Dr. George M. Beard, Dr. J. Leonard Corning, and others, have devoted interesting articles to the subject of seasickness.

Having thus outlined the principal theories that other authors have advanced as to the remote cause and intimate nature of naupathia, let us describe still another one which, though new and entirely original with the author, has already been productive of rich therapeutical results. In other words, we will here expose our conception of the pathogenesis of seasickness that, followed to its logical conclusion, has indicated a mode of treatment unusually successful.

At the time this theory was accepted, after a thorough and independent study of seasickness, we were wholly unaware of those of other observers, for our researches into the literature of the subject were not made till long after our theory had been put into practice.

It is to be stated as an initial proposition that *the principal symptoms (q. v.) of seasickness, if not all, depend (1) upon an abnormal state of the circulation of the blood; (2) upon an abnormal state of the nervous system.*

Certain of these symptoms (vomiting, acceleration or slowing of the cardiac pulsations) are attributable to *anæmia of the medulla oblongata*; others (prostration, vertigo, and feeling of great distress) to *anæmia of the brain*; still others to *anæmia of the skin*; the oliguria, to a diminution of blood pressure in the kidney. On the other hand, the constipation, the feeble resistance of the pulse, and probably also the variation in the number and in the force of the heart beats, indicate *the diminution or the absence of action of the sympathetic nervous system* upon the unstriated fibers of the intestine and of the arteries, and also upon the intracardiac nerve ganglia.

This question of the *anæmia of the nervous centers* is interesting, but is one which at first sight is not easily explainable. Does there exist in naupathia a general *anæmia of the whole organism*? We think not. How can it be admitted in effect that a person who only a few hours before becoming seasick was enjoying perfect health, who might even have been plethoric, could suffer in so short a time a change in the quantity or quality of his blood, so that one is forced to believe in the existence of a veritable *anæmia of the whole organism* in the ordinary sense of the word?

It is a supposition evidently inadmissible. It can not be admitted that there is notably less blood in the body of a seasick person than there was in his body a few moments or a few hours before, when he was not yet sick. Therefore the quantity of hæmoglobin and the number of globules remain the same. How explain, then, the symptoms commonly attributed to *anæmia of different organs*? Without wishing to deny in any way the existence of this kind of *local anæmia* of the nervous centers, we feel able, on the contrary, to affirm and to explain its presence by attributing it (as we have already hinted) to general disturbances of the circulation of which they constitute but a feeble part. These disturbances we are about to study.

1. *The cause of naupathia is a general lowering of the arterial blood pressure.*

This conception of such a great disturbance of the circulation very naturally explains the oft-mentioned bulbar *anæmia*—i. e., *anæmia of the medulla oblongata*. If the medulla is *anæmic*, it is because the arterial pressure is not strong enough to fill and distend its arteries and arterioles. But all the other parts of the nervous system are also in the same condition. We have here a sufficient cause of the feebleness and inactivity of the centers of innervation of the heart and the blood-vessels. These centers are poorly nourished; they can not, therefore, perform their functions well.

We base this opinion (lowering of the blood pressure) upon the abnormal depressibility of the pulse, the coldness of the extremities, the oliguria, the paleness of the skin, also upon the extreme prostration and the feeling of "goneness" to which the seasick are subject, and upon the vertigo and cephalalgia that are among the symptoms of cerebral *anæmia*.

2. *The cause of the lowering of the arterial blood pressure is the feebleness of the heart's action, and probably also the slight dilatation of the sanguineous vessels, especially the arteries.*

When there is lowering of intravascular pressure in a vascular system, elastic and closed at all points, as is the circulatory apparatus in man, this lowering can only be due to two conditions: (1) Diminution of the contents of that vascular system, and (2) enlargement of the container, in this case of the vessels. The diminution of the contents of the arteries may result from (a) an arterial hæmorrhage; (b) the passage of the blood into the veins; (c) a lessening influx of blood sent from the left ventricle—that is to say, hyposthenia of the heart or cardiac insufficiency. In seasickness the first of these possibilities (a) should, of course, be excluded, but the third (c) ought to be considered as having a real influence. The enlargement of the container may result from (1) the dilatation of blood-vessels—above all, of the arteries; (2) the expansion and congestion of those organs that serve as reservoirs for the blood, and which are, among others, the spleen, the liver, and the intestine (Brücke). We shall see that these two factors may also be encountered in naupathia.

There are thus presented at least three causes for producing the lowering of the blood pressure. The cardiac hyposthenia is revealed by the feebleness of the heart beats

* Zur Lehre von der Seekrankheit. *Berl. klin. Woch.*, 1891, xxviii, 260, etc.

and by the abnormal depressibility of the pulse. As for the other two (dilatation of the blood-vessels, afflux of blood into the spleen, liver, and intestines), the direct proof of their existence is not easy to give; but the following considerations show how highly probable it is that they do exist. It will be demonstrated in a moment that the sympathetic nervous system which regulates the tonus of the arterial system (Cl. Bernard, Vulpian, Brücke) is paretic, whence the probable enlargement of the caliber of the arteries. On the other hand, Brücke declares that the vascular territory of the chylopoietic system (intestinal walls) is extensive enough to contain nearly all the blood in the body, whence the possibility of the lowering of the blood pressure by a kind of stagnation of the blood in the chylopoietic system.

3. *The cause of the enfeeblement of the heart's action and of the probable dilatation of sanguineous vessels is the paresis of the cardio accelerator and vaso constrictor nerve centers.*

It is universally admitted that the pneumogastric nerve possesses an inhibitory action upon the movements of the heart by intermediary of the intracardiac nervous ganglia. This is the *inhibition reflex*, so called by Bidder. It is also well known that the cervical portion of the great sympathetic exerts an accelerating action upon the heart. The excitation or stimulation of the nerves issuing from this portion of the ganglionic nervous system raises the blood pressure and increases the frequency of the pulse (Brücke). *Per contra*, when these nerves are paralyzed (by reflex action, by insufficient nutrition, or by other causes) the contrary phenomena are observed. It merits mention that Ludwig and Cyon have demonstrated that these two conditions (elevation of blood pressure and augmentation of frequency of the pulse) may each be independent of the other.

There are, however, other regions of the nervous system that possess a motor action upon the vessels. The principal center—motor and reflex—for the vascular system as a whole is found in the medulla oblongata (Schiff, Goltz, and others). But this vascular center extends along the whole height of the pons Varolii and even into the cerebral peduncles (Meynert). When this center no longer exerts its normal action upon the vessels, these suffer passive dilatation, whence follows a lowering of the blood pressure.

I have already admitted the existence of anæmia of the medulla and of all the cephalic and cervical nervous centers. Owing to the very fact of this anæmia, the vascular centers in those regions are insufficiently nourished and can not therefore accomplish their normal functions. It is the same thing for the cardiac accelerator center. It is by default of excitation from these centers that the heart does not beat so forcibly or so frequently and that the vessels allow themselves to be passively dilated. In cases of naupathia in which the cardiac pulsations are increased in number this abnormal frequency should be attributed to a co-existing paresis of the pneumogastric.

I have thus endeavored to establish my point which constitutes the third link in the chain of sequences present in seasickness.

4. *The cause of the paresis of the cardio-accelerator and*

vaso-constrictor centers is a reflex inhibitory influence exerted upon these centers, and originating either in the sensorium or in organs unequally and alternately pressed and pulled about by the movements of the ship, or finally in the walls of the blood-vessels themselves.

It was seen in the preceding paragraph that the anæmia of the nervous centers is a cause of their paresis. But this cause acts only when seasickness is actually established. The first and initial cause of this paresis should be sought elsewhere, and we can not consider it other than a reflex act of which the starting point is variable.

This reflex act, it has been said, may originate in the sensorium. It is in this manner that we explain the appearance of nausea, and vomiting even, in idiosyncrasic individuals upon merely seeing a boat tossed about by the waves, or upon perceiving an odor that vividly recalls to their mind the bad smells and other unpleasant circumstances of a former sea voyage when they were sick. There is nothing extraordinary in this, for that matter, for everybody admits that these phenomena (nausea and vomiting) are of a reflex order, and that the starting point is very often the sensorium.

This reflex act may also have its origin in the nerve endings in the abdominal and other organs. Kéraudren had already expressed an opinion somewhat similar. It is very rational to admit, in effect, that the organs situated in the great cavity of the abdomen undergo displacements more or less extensive, or suffer from slight collisions or contusions which result from the violent motions of the ship. The numerous nerves distributed to these organs are thus pulled, stretched, contused, and excited, for the abdominal walls are not rigid and inelastic enough to prevent some displacement of these organs. Hence there can arise here a reflex act having as result the production of seasickness by the process above described.

It is doubtless in these data that is found the true explanation of the greater frequency of naupathia in adult women, in whom the abdomen is relatively more developed than in men, and in whom the abdominal walls have become laxer from one or more pregnancies. It results from this that the abdominal organs are less solidly held in place in their normal situation, whence the greater facility of their displacement with all its consequences.

It is possible that there is still another origin of this reflex act in question. Wollaston with his "barometric theory" of seasickness touched closely to this point, but we conceive it in a somewhat different manner nevertheless. We also believe, it is true, in the reality of the influence of the movements of the boat upon the course of the blood in the vessels—an influence comparable to that exerted upon the mercury in the barometer tube by the same movements, only this influence is much less manifested upon the blood than upon the mercury by reason of the difference in the specific gravity of the two liquids. In fact, the column of blood in an artery, as the column of mercury in the barometer, exerts its strongest pressure on its containing walls (artery or glass tube, as the case may be) at the moment when the part of the ship occupied by the patient or by the observer sinks to its lowest point in the movements

of pitching and tossing. In other words, as the ship sinks to its lowest between the waves in a violent movement of descent, then the blood, having acquired a positive momentum downward, exerts more pressure than usual upon the walls of the blood-vessel containing it. This extra pressure tends to dilate the blood-vessel, or else actually does dilate it by force, especially if it is situated in the middle or inferior parts of the body. This condition could also be a starting point of the reflex inhibitory act.

It is easy to understand the action exerted upon the different organs and liquids of the body by the movements of the ship when one observes what occurs in cases like the following: On board of a ship, pitching in a heavy sea, a person is seated in a deep chair having easy spiral springs in the bottom. When the ship moves rapidly in a vertical plane, the person seated in the springy easy chair follows a movement which is not exactly that of the ship. In certain parts of the trajectory the person rises or falls with greater speed than the ship itself does. For instance, during the rise of the ship, especially during the second half of the rise, the person feels himself lifted or pushed up as though about to be shot out of the chair. He has the feeling of a sudden diminution of weight. The spiral springs lengthen out, and the occupant of the chair is actually elevated to a level higher by several centimetres, compared with surrounding objects—tables, windows, etc.—than that which he had an instant before. His back shoots up a little further above the back of the chair than it did before the ship started upward. At the end of the rising of the ship this independent movement on the part of the person ceases, and the two different rates of speed unite little by little, so that both the ship and the person in question arrive at the same instant at the maximum height of their respective courses. A similar difference in the speed of the two objects takes place during the descent of the ship into the hollow of the waves, only in an inverse direction. Now the person sinks more deeply into the soft bottom of the chair as the ship falls. Toward the end of the descent the person feels himself settling harder into the springy seat, as if his weight had suddenly increased or a heavy hand was pushing him downward. Quite at the end of the descent, as for the rise, the habitual equilibrium is re-established and the two movements are blended again. This is repeated at each upward and downward plunge of the ship, and the degree of intensity with which this takes place depends upon the violence of the ship's movements. The phenomena just described are real, as any traveler on a rough sea can testify. A person lying in bed during a storm experiences similar movements. Inanimate objects are seen to do the same thing when on springs. Mercury in a barometric tube acts in the same manner.

In regard to mercury in a barometric tube we have undertaken a few experiments to note the rapidity with which the translation of the quicksilver takes place. Interesting results were obtained. The apparatus consisted simply of an ordinary straight glass tube, thirty-six inches long, hermetically sealed at one end. This tube, which had a caliber of an eighth of an inch, was filled with mercury and inverted into a bottle containing mercury, no air being

allowed to enter the tube. When the tube was put vertically with the sealed end upward, there formed the usual Torricellian vacuum of five or six inches in height. The apparatus thus completed was carried to the extreme stern of the ship, where the rise and fall were the greatest during rough weather. It was found that under these circumstances the mercury was animated by very lively movements. As the ship sank into the hollow between the waves the mercury would also start to sink at the same time. The speed of the latter would increase rapidly as the ship was reaching its lowest point; then both the mercury and the ship would come to rest at the same instant. By this sinking of the mercury the vacuum would be lengthened by two or three inches according to the violence of the ship's descent. When the ship rose, the quicksilver would also rise, increasing in speed as it neared the top of the tube. When the ship was at its highest, so was the mercury, and sometimes its momentum had become so great that the vacuum was wholly obliterated, the mercury striking the top of the tube with a sharp click. It will be noticed that this movement of the mercury corresponds exactly with that of the person in the springy chair just described.

With the experiments of the barometric tube in mind, it is easy to admit that the blood in its vessels, especially in such as run more or less in a parallel manner to the long axis of the body, also is affected by an influence of the same kind, although not to the same extent. It can not be supposed that a vacuum is created in any part of the vascular system, but there is certainly the *tendency* to form one when the ship sinks rapidly, and this tendency must certainly impede the circulation to some extent and tend somewhat to expand the elastic vessels.

These facts in connection with the springy chair or bed and the barometric tube are very easy to observe, but it remains to explain them, to know their effects, and to apply them to the study of the pathogenesis of naupathia.

We explain them by supposing that during the first half of the upward or downward movement of the ship the mobile objects mentioned (person in the chair, mercury in the tube) have acquired a certain momentum which causes them to be displaced more rapidly during the second half of the oscillation in the same direction. This displacement would fail to take place if the person, for instance, sat upon an unyielding seat or stood upon the floor. But it must not be forgotten that the same forces are still at work, and that they affect whatever there is about the body that is not rigid. It is thus that the abdominal organs, being not absolutely immovable in their respective positions, are subjected to movements and to displacements comparable to those presented by the person in the chair. More than this: In the physiological laboratory of the Sorbonne, in Paris, M. Dastre has shown by actual experiments on the lower animals that movements like those of a ship actually do cause the abdominal organs to be shaken about, displaced, and their means of fixation strained. Here, then, is positive evidence of a source of irritation to the nervous system.

We see, therefore, that the various organs of the body

may undergo these contusions and collisions, as Kéraudren affirms; that the blood may be hindered in its course, as Wollaston suggests; and we wish to repeat that these phenomena may be the starting point of a nervous reflex act that, according to the chain of causes and effects above described, results at last in the production of seasickness.

5. *There exists in naupathia, once established, a veritable circulus viciosus, which explains the tenacity of the affection and its resistance to divers methods of treatment.*

This vicious circle is thus constituted: The seasickness being in full development with its habitual retinue of symptoms, there had previously been produced (as was demonstrated) a lowering of the arterial blood pressure, by virtue of which the nervous centers do not receive the full quantity of blood necessary to the perfect functioning. These centers, among which are the cardio-accelerator and the vaso-constrictor centers, being insufficiently nourished, can no longer react against the lowering of the blood pressure, and since this lowering is the immediate cause of the naupathia, the organism is thus unable to bring this state of things to a close, which state, without the efficacious intervention of the physician's art, will last indefinitely. It is only when the organism becomes gradually habituated to its new surroundings that it returns little by little to its normal state, or else the end of the voyage puts an end to the causes of the affection.

In *résumé*, here are the different steps *de initio ad terminum* of the process, as we understand it, which engenders the complexus of phenomena known as seasickness: Movements of the ship about one, at least, of its axes; movements, slight or considerable, and repeated displacements, collisions, and stretchings of various organs of the body, especially of the abdominal organs, and unequal and alternate increase and lessening of the pressure exerted by the columns of blood upon the walls of the arteries and veins; reflex nervous act starting from the displaced and strained organs and from the walls of the blood-vessels, and acting by inhibition upon the cardio-accelerator and vaso-constrictor centers; paresis or paralysis of these centers; consecutive loss of the tonus of the vessels and relaxation of the walls of vessels of medium caliber, and frequently diminution of the number of cardiac pulsations, whence results a *lowering of the arterial blood pressure*; establishment of a vicious circle, which places the organism in the impossibility of issuing spontaneously and immediately from this morbid state; finally, appearance of the external signs denoting the complete development of naupathia.

The great sympathetic nervous system is the most important factor in the production of this affection. Its inactivity paralyzes the muscular tunic of the intestine, whence the constipation; paralyzes the radiating fibers of the iris, whence the myosis; paralyzes the accelerator nerves of the heart (at least in men and in half the women) and probably also the vaso constrictor nerves of the blood-vessels, whence the lowering of the blood pressure with all the symptoms that depend upon it; it favors by its paresis the production of pytalism, as certain experiments of Czermak, Eckhard, and Grützner demonstrate. One might

really affirm that *all the symptoms of seasickness, without exception, are explained by attributing them to a paralysis of the grand sympathetic.*

We have already defined the place that this affection should occupy in medical nomenclature.* It hardly merits the appellation *disease* any more than syncope does, with which it has several characteristics in common. It is not caused or accompanied by any known anatomical lesion; it is only the expression of certain functional or dynamic troubles. It has therefore no pathological anatomy; its pathological physiology is sufficiently described in the preceding paragraphs. Morbid affections without known lesions are generally classed under the name of neuroses. It seems, therefore, that naupathia ought also to be considered a neurosis, and, according to the eminently preponderant rôle that the sympathetic nervous system plays in this affection, it ought to be regarded as a *neurosis of the great sympathetic*. Thus classed, it would be the most important of all the known neuroses of that part of the nervous system.

(To be continued.)

FOUR YEARS' WORK IN DISEASES OF THE RECTUM

AT THE POST-GRADUATE HOSPITAL CLINIC.

By CHARLES B. KELSEY, M.D.

It is just four years to-day since the attempt to give systematic clinical instruction in diseases of the rectum was begun at this college. I remember well our first and only patient on that day—a man who was convinced that he had a stricture of the rectum because he was constipated and because a bougie caught upon the promontory of the sacrum. Many such have been shown to the class since.

In the four years we have had five hundred and seventy-eight cases (no case being entered twice for the same disease), and we have operated two hundred and ninety-two times before the class. A few of the more common affections of the rectum and anus make up a majority of the cases, but there is scarce any disease in any way relating to these parts which you have not had a chance to study more than once. For example, there have been 192 cases of hæmorrhoids, 72 of fistula, 61 of non-malignant ulcers and strictures, 39 fissures, 35 cancers, 29 cases of pruritus, 28 of prolapse, 26 of abscess, and 17 of polypus, making 502 out of 578 cases; but the balance includes perhaps those of greatest interest, covering as it does congenital malformations, 5; pelvic abscess, 5; incontinence of feces, 5; intussusception, condylomata, coccygodynia, acute proctitis, foreign bodies, impaction, neuralgia, and the cases of simple intestinal catarrh with the symptoms of diarrhoea or constipation so frequently sent to us for examination either for supposed ulceration or stricture.

The list of operations is made up as follows: Hæmorrhoids, 90; fistula, 40; fissure, 24; abscess, 20; colotomy, 31; extirpation, 11; proctotomy, 7; ulcers, 19; polypus,

* W. W. Skinner. The Place that Naupathia, or Seasickness, should occupy in Nosology. *New York Medical Journal*, 1889, xlii, p. 626.

12; prolapse, 20; faecal incontinence, 4; proctoceles and lacerated cervix, 2; pruritus, 6; intussusception (laparotomy), 1; pelvic abscess, 2; congenital malformation (plastic), 3.

In the ninety operations for hæmorrhoids the clamp and cautery have always been used, and there has been no case of hæmorrhage, stricture, or other accident of any kind whatever, and no case of recurrence. The average length of time in bed has been forty-eight hours, and in hospital less than one week. You all know how common it is to see these patients up and walking around the wards two or three days after the operation, and how difficult it is to keep them here till the expiration of the first week in order to show them to the class. The house staff know how rarely any anodyne is given and that the use of the catheter is almost unknown. These cases are operated upon, moreover, without any preparatory treatment of any kind. They come into the house an hour or two before the clinic, are etherized and operated upon, and for about two days are kept in bed. At the end of that time the bowels are moved by a laxative, and the patient begins to want to leave the house. Rarely does one remain more than a week. Some of them report as out patients at the end of the second week; many are never seen again. This general history has been repeated nearly a hundred times before you in the last four years, and because these results are the ordinary ones and can not be approached by any other method of operating, we always use the clamp and cautery, and shall continue to do so till something better is found to replace it.

It is only fair to say, however, that the success of this method depends, like most other operations, a great deal upon the manner in which it is done. Although the operation is exceedingly simple, and can easily be completed in a case of extensive disease within a couple of minutes by a practiced operator, it is just as easy for an unskillful operator to cause great after-pain, sloughing, and hæmorrhage. It has come to my knowledge that in one part of the country the operation fell into great disrepute because of the after-pain and sloughing. Having, after considerable persuasion, myself operated upon one of the best of the unsuccessful operators, he was equally pleased and surprised at the entire absence of any bad symptoms. He could not understand the cause of the difference till he went with me to see yet another case, when, after a few seconds, he exclaimed, "I see it all!" It seems that, instead of pulling the hæmorrhoids outside of the anus before removing them, these gentlemen had been carrying the clamp and then the cautery within the bowel, and applying them to the tumors *in situ*.

Another example occurs to me. At a clinic in New York, although this method is generally followed, the operator always fills the rectum after the operation with a vulcanite tube wrapped in iodoform gauze. At the Post-graduate Clinic no dressing is ever used except a pad and T-bandage for an hour or two. It would seem as though to first remove the piles and then plug the anus with a generous roll of gauze might cause a good deal of after-pain. If the cautery is properly used, the plug will never be necessary.

This is not the place, however, to describe the details of the operation. The results are given simply. These results can be obtained by anybody who has once either seen the operation performed or grasped its technique from a written description.

Of non-malignant ulcerations and strictures there has been a large and varied collection, every variety known being shown and operated upon more than once. Perhaps the chief point of interest in them, outside of the question of treatment, is the difficulty generally met with in deciding upon their origin and pathology. No patient is ever accused of having had syphilis because he or she happens to have a stricture of the rectum; for, although we teach that syphilis is a possible cause of ulceration and stricture, we believe it to be one of the least frequent, while in most text-books you will find exactly the opposite taught. When we do not know the exact character of the morbid process there are many possible causes to be considered besides syphilis. Simple varicose ulceration of the rectum, or ulceration due to slight traumatism, will account for many cases. Many, I confess, are difficult to classify, but because we can not tell with certainty we are not justified in lumping them together as syphilitic, especially as we know nothing about what the morbid process is or how it begins which is supposed to cause the so-called "syphilitic stricture," and as there is often no history or trace of any other manifestation of the disease. There is a chancroidal ulceration of the rectum and also a tertiary syphilitic ulceration, both of which may cause stricture. But both of these are so rare you will probably never see them, and the time for classifying all strictures not malignant as due to a process which has never been understood, but which has been much written about under the title of "ano-rectal syphiloma," has gone by. Therefore we classify the cases as tubercular, dysenteric, traumatic, varicose, lupoid, and venereal, as the history and appearances may decide, but, when we do not know, the case is put down as doubtful and not as syphilitic.

In the treatment there are three different methods—local applications with or without proctotomy, colotomy, and extirpation. It is only the slighter forms of the disease which can be benefited by cauterization, division of the muscular tissue, rest, and diet. Most of them, after they have existed for any length of time and have done their destructive work, are incurable by any means short of colotomy or extirpation. When the disease is low down and when we are sure that it is confined to one spot which can be reached, we may be inclined to extirpate it; in other cases a colotomy is indicated.

In passing, there is one other point which may be of interest. What is the authority for the universally accepted statement that this affection is much more frequent in women than in men? In our experience here, as in private practice, we find the disease equally divided between the sexes.

The thirty-one colotomies show the wide range of applicability of the operation, having been done for imperforate anus, old pelvic cellulitis with abscess and pressure on the gut from plastic exudation, non-malignant ulcera-

tion both with and without stricture, rectovesical fistula, for destruction of the gut due to old hip-joint disease, and for cancer. The majority of these operations have been eminently satisfactory in accomplishing the end desired—the relief of pain and prolongation of life. Occasionally an opportunity occurs to show you one of the cases after two or three years have elapsed. A few weeks ago you had a very striking clinical illustration of the advantages of the operation given you by the surgeon from the West, a member of the class, upon whom I operated two years ago for simple ulceration. His own account of himself was of much greater value than anything I might say about him, and he asserted that he was perfectly comfortable and able to attend to a large practice without the least annoyance from the artificial anus. The ulceration for which the artificial opening was made had entirely healed, but the rectum was much contracted and he did not care to take any risks to have the new anus closed.

There is one point worthy of attention in this connection. In operating for cancer you can promise a great deal, but not everything. Although the patient will almost invariably gain fifteen or twenty pounds of flesh in the first few months and will improve greatly in every way by the absence of the rectal tenesmus and the ability to sleep, he will still suffer from the cancer itself. At first you may hear some complaints that he still has pain in the back and loins, and that he still has to go to the closet once or twice in twenty-four hours to relieve the rectum of a little blood and slime. These two troubles you may never be able to stop; and yet while the patient is complaining most bitterly of them he is apt to tell you, if you ask him, that he has decidedly gained in health and strength, that the artificial anus is the cause of no particular annoyance, that he sleeps well at night, and eats as well as he ever did. As the time goes on and life is prolonged from weeks to months and even to years, his appreciation of what has been done for him will also increase.

We have had our fatal cases also—three or four of them. In hospital practice, especially where cases are operated upon in the last stages of exhaustion and intestinal obstruction, some will die shortly after the operation who would have died just as soon had they not been operated upon. I remember but one case among those I have put down as fatal where it could properly be said death was directly due to the operation itself, and that one should not have been lost. The others have been cases in which the operation has simply been done too late to save life, and the patients have died in spite of it rather than because of it.

The rule followed here in the treatment of cancer of the rectum is almost invariably to operate as soon as the patient's consent has been gained, either by colotomy or one of the methods of extirpation. In the cases suitable for extirpation we do it; in the vast majority of the others the patient will live longer for a colotomy. There are exceptions to this, and a cancer may exist which can not be removed and which does not call for an immediate colotomy; but such cases are a very small minority—not more than one or two per cent.

The eleven cases of extirpation have all been for malignant disease. In the one case begun for non-malignant stricture the disease proved so much more extensive than was anticipated that not even Kraske's incision sufficed to give us room, and the operation was abandoned, no harm resulting from the attempt.

In extirpating, the incision is used which gives sufficient room for the purpose. The old perineal incision we have practically abandoned, because even in disease sufficiently near the anus to be reached in this way, a short dorsal incision with preliminary removal of the coccyx gives a much better field for removal of the lower end of the gut. By this incision, instead of rushing the operation, as is necessary when cutting at the small end of a deep funnel amid profuse hæmorrhage, we can operate slowly and with great precision, securing each bleeding vessel as it is shown. This incision will suffice also for the removal of many growths without opening the peritoneum or cutting away the sacrum. If it should not give room it is easily prolonged upward and to the left, the sacral ligaments can be cut, the lower sacral vertebrae removed, and we have all the room possible to obtain.

Even with this incision there is a great difference in patients as to the ease with which the sigmoid flexure may be drawn down, depending on the attachment of the mesentery.

Perhaps the main difference between our practice as to extirpations here and in some of the general hospitals will be found in the choice of cases. Many cases are manifestly only suitable for extirpation, and in these the results are good. Many others with equal certainty call for colotomy, and here also the results are good. But in the cases on the border line—those in which an attempt at extirpation is justifiable, but in which an immediate recurrence seems to us more than probable—we always give the advantage of the doubt to the patient and do the operation of least danger and greatest certainty of relief—colotomy.

The one case of laparotomy for intussusception was not successful in prolonging life. The little patient was *in extremis*, the invagination having existed more than a week, and died about twelve hours after the operation. It was a case in which the diagnosis was easily made by the presence of the appendix and caput coli in the rectum.

In the very annoying and obstinate cases of pruritus ani we have obtained the best results from light applications of the cautery to the affected surface, preferring this to the free curetting with the sharp spoon as done abroad. Many cases have been cured in this way which had for years resisted milder forms of treatment.

The twenty operations for prolapsus have all been successful as far as we know. In the severe cases we rely upon the linear cauterization according to Van Buren's plan. In the milder ones we use the clamp as well as the cautery in much the same way as in operating for hæmorrhoids. Only one case has occurred in which it was thought proper to attempt resection of the prolapsed gut, and in that one the patient died of an intercurrent affection before the operation.

A METHOD OF RHINOPLASTY.*

By PARKER SYMS, M. D.

By this term is meant a plastic operation for the restoration of a whole or portion of a nose which is absent as the result of a destructive injury or disease or of congenital deformity. Hence is the very natural classification of rhinoplasties into complete and partial.

When the principal parts of the nose are absent, including the soft parts and the cartilaginous framework, even though the nasal bones are intact, the operation necessary for restoration belongs to the first class. Many ingenious and elaborate operations have been devised for this purpose. Extensive and peculiar flaps have been taken from various parts of the face, arm, hand, etc., by gliding, sliding, transplanting, and grafting; without the bony and cartilaginous support these flaps eventually become sunken to the level of the face, and all that has been accomplished is the covering up of the former cavity and space. To supply the lost support, a phalanx of a finger has been attached in site, the soft parts of the finger used to form the new nose, and after union had taken place the finger amputated from the hand, which had been held in place by means of a plaster splint. More recently an osteoplastic flap has been turned down from the forehead. I saw such a case last week in which a good bony bridge had been obtained. In the cases of complete or nearly complete absence of the nose no operation has yet succeeded in more than changing the character of the deformity and of improving to a comparatively slight extent the appearance of the patient. I have come to the conclusion that complete rhinoplasty is useless and that the patient will do much better to avoid the prolonged torture of oft-repeated operations, and the further deformity of other parts resulting from these plastic operations, and to wear an artificial nose. A nose made by surgical skill is always a ridiculous deformity, is always conspicuous and revolting, and never would be mistaken for a nose if it were situated in any other part of the body than the place where a nose should be. An artificial nose is much less conspicuous and is much more natural in appearance. Of course it is more or less troublesome to wear, though this objection is very materially lessened by ingenious devices.

When the essential portions of the nose are intact a very good result may be obtained by plastic operations, but always in inverse proportion to the amount to be restored.

These partial rhinoplasties should be as simple and as limited in extent as possible, for there is always a resulting deformity at the site from which a flap has been taken. Due consideration of this fact must be made, for the object is to improve the appearance of the patient and not merely that of the nose.

It is not my intention to describe the many forms of plastic operations on the nose, but to call attention to one very simple one, which will accomplish all that more elaborate and complicated procedures will, in cases in which

there is a considerable destruction of this feature. In these cases the only result to be expected is to supply the deficiency and leave as inconspicuous and natural a nose as possible.

The cases in which I have had experience in this operation have been cases of cancer in which more or less of the nose had been removed surgically and the flap operation done at the same sitting. The first one I saw was done by my friend Dr. Outerbridge, and I was so pleased by the simplicity of the operation and by the ultimate result that I have been glad to adopt it.

In these cases the septum was not destroyed, but a considerable portion of the soft parts had to be removed.

The operation consists in making a single flap on the diseased side by two parallel incisions made as far apart as the space to be filled is wide. The incisions go through the skin and its fascia; they are carried far enough to allow the flap to be drawn to the further margin of the space without much tension. The flap is then stitched in place and to the skin margin throughout the entire length of the incision. This flap is entirely analogous to the one made in Malgaigne's operation for the formation of a new lip. If the lower part of the nose is the seat of the operation, the incision may be made perfectly straight from the nose, for there the skin is very loose and will stretch readily. If it be difficult to get sufficient length of flap, the incision should be curved downward almost at a right angle and the flap pulled out straight. Should there be some puckering of the skin on the face in suturing the flap to it, it will be owing to the fact that the flap is shorter than the skin margin. This is to be overcome by removing a triangle of skin at the outer end of the incision, its base being the line of the incision; then suturing the sides of the triangle together will shorten the skin margin. If the anterior surface or both sides of the nose be involved, a similar flap should be made on each side of the face and their ends sewed together so as to completely cover the nose.

In cases of cancer, recurrence is so apt to take place that an elaborate rhinoplasty would not be justifiable even if the result would be a natural-looking nose. The operation which I have just described is very simple, can be done quickly, and the result so far as appearance is concerned compares very favorably with that of other and more complicated methods.

The Suprarenal Capsules in Pyocyanic Infection.—"M.M.

Langlois and Charrin, observing with regret that in bacteriological investigations the suprarenal capsules are very rarely examined, or if so only macroscopically, have endeavored to remedy this defect in their investigations on pyocyanic infection. They report that the suprarenal capsules of guinea-pigs with acute pyocyanic infection were always enlarged and were darker on the surface than normal. The capillaries of the surface, too, were full and congested; the surface of a longitudinal section was dark. When the juice was sown on agar, pyocyanin appeared. After hardening, sections showed the central zone engorged with blood; the vessels were dilated and sometimes hæmorrhages could be detected. The tubes bordering on the central zone were enlarged and the cells contained colored granules."—*Lancet*.

* Read before the Society of the Alumni of Bellevue Hospital, November 1, 1893.

ON SOME OF THE MANIFESTATIONS OF
SYPHILIS OF THE UPPER AIR-PASSAGES.*By J. H. BRYAN, M.D.,
WASHINGTON, D. C.

SYPHILIS affecting the mucous membrane which lines the upper respiratory tract manifests itself in so many different ways, and is of such interest to the surgeon, that a report of a few cases illustrating some of its rarer manifestations may be of interest to the association.

CASE I. *Syphilitic Stenosis of the Larynx*.—This was a particularly distressing one, occurring in a lady of high social standing, who acquired the disease through her husband. Owing to the difficulties in the way of getting a history of her trouble, the disease had steadily increased, making severe inroads upon her system before it was recognized. Before coming under my care it was stated that she had been treated for three years for tuberculosis of the larynx. When first seen by me she was greatly emaciated and scarcely able to walk without assistance. There was great difficulty in breathing and almost complete aphonia. She was greatly annoyed by a distressing cough, which was accompanied by an expectoration of a thick,ropy mucus. The paroxysms of coughing at times were so severe as to threaten life.

Examination revealed the mucous membrane lining the fauces, the larynx, and the pharynx to be of a very pale appearance. In the post-nasal space there was a large cicatrix on its posterior wall, the result of a former ulceration. The right half of the epiglottis had been destroyed by an old ulceration which had healed. The ventricular bands were infiltrated to such an extent as to almost completely obliterate the lumen of the larynx, leaving a very small opening posteriorly, which served for the passage of air and expulsion of mucus.

It was ascertained that some years ago she had had an eruption on her face, and had also suffered from rheumatism, for which she received treatment at the Warm Springs of Virginia.

Auscultation of the chest revealed numerous large and fine râles due to the pent-up mucus which the patient was able to expel only in small quantities.

A bacteriological examination of the sputa gave negative results.

The patient was urged to submit to intubation, with the belief that it was the readiest method of obtaining relief in her then critical condition, but at the earnest solicitation of her family it was postponed in order to give internal medication a fair trial. Accordingly, the patient was given a saturated solution of iodide of potassium, the dose of which, beginning with fifteen grains, was gradually increased to the point of tolerance, which was found to be eighty grains in the twenty-four hours. Within a few days the patient expressed herself as feeling relieved, the breathing became easier, and the cough and expectoration much lessened. The improvement continued, and in the course of two months the infiltration of the ventricular bands had so far disappeared that a good view could be obtained of the interior of the larynx and the upper part of the trachea. The vocal cords were found to be almost completely destroyed, and in the trachea were semicircular bands of cicatricial tissue as far down as could be seen.

The patient gained rapidly in flesh and strength, and in the course of six months she was able to walk several blocks without assistance. The dyspnoea, although still present, was

greatly reduced in intensity, and the voice, which was nearly absent, was so far restored that she could speak in husky tones.

I have recently seen this patient, who has been absent from the city for nearly two years, and her condition is much the same, the stenosis not having returned.

CASE II *Syphilitic Amygdalitis undergoing Suppuration*.—Mr. —, aged forty-five years, consulted me in October, 1891, for tonsillitis, stating that for several weeks there had been a great tenderness in the throat and difficulty in swallowing. A specific history was denied.

Examination showed intense congestion of the fauces with enlargement of the left tonsil, the latter presenting a grayish appearance on its free surface. The patient had not been under observation more than a week before a macular eruption made its appearance on the face, trunk, and upper extremities.

The amygdalitis advanced in spite of a vigorous mercurial treatment, and resulted in suppuration, the abscess pointing at the lower border of the tonsil, between it and the base of the tongue. About the same time there was a marked swelling of the left arytenoid cartilage and the corresponding aryteno-epiglottic fold, which so encroached on the lumen of the larynx as to embarrass respiration.

The mercurial treatment was abandoned, and the patient was given twenty grains of iodide of potassium three times a day; the result was a rapid subsidence of the swelling of the arytenoid cartilage and of the ary-epiglottic fold, and a complete disappearance of the inflammation of the tonsil.

This case is of interest as it illustrates the intensity of the poison, which was sufficient to produce suppuration, which is unusual in amygdalitis due to syphilitic causes.

CASE III.—*Congenital Syphilis of the Pharynx and Larynx*.—The family history of this case is instructive. It appears that the mother contracted a chancre on the lip from kissing her lover, whom she afterward discarded for her present husband, who has always been a healthy man. The chancre was excised, and no secondary cutaneous symptoms made their appearance. She had, however, some throat and bronchial trouble, which was relieved after a course of iodide of potassium. The result of the union was three girls; the eldest, between sixteen and seventeen years of age, has been an invalid for a number of years, bordering on imbecility. The second daughter is fifteen years old and is a fine-looking girl, who has thus far shown no signs of syphilis. The third daughter, the subject of this sketch, is now twelve years of age. When about nine years old she began to show signs of failing health. Both eyes were the seat of interstitial keratitis to such an extent as to cause almost total blindness. She also suffered at this time from deafness and an inflammation of the nose. Under the judicious employment of mercury by her oculist, Dr. Richey, who referred her to me, the opacity of the right cornea cleared up entirely and that of the left is rapidly disappearing. She recently came under my care for a severe sore throat and a persistent cough which prevented her from getting any continuous rest at night. Her condition was then as follows: The expression was one of anxiety, the complexion pale and waxy; the left eye showed slight interstitial keratitis, and the voice was husky. On examination, the nose was found to be filled with a thick muco-purulent secretion, which, when removed, showed a pale, thickened membrane lining its cavities. The teeth were regular and not notched. On inspection of the throat, a small ulceration was observed on the anterior surface of the soft palate, while in the post-nasal space there was a large ulceration extending down to the soft palate, involving the right posterior palatine fold, and which had destroyed the right tonsil. Ex-

* Read before the American Laryngological Association at its fifteenth annual congress.

amination of the larynx revealed an ulceration which had destroyed the right half of the free margin of the epiglottis, and an enlargement of the arytaenoid cartilages and ary-epiglottic folds to such an extent that it was impossible to get a view of the interior of the laryngeal cavity.

The patient complained of a constant pain in the region of the larynx, radiating toward the ears, painful deglutition, and an incessant cough with some dyspnoea.

The patient was given an antiseptic wash for the nose and throat and ordered five grains of the iodide of potassium three times a day, and tonic doses of mercury were continued. She began to improve under this form of treatment immediately, and in the course of three weeks the ulcerations in the pharynx and larynx had completely healed, and the swelling of the arytaenoid cartilages and the ary-epiglottic folds had subsided so that the interior of the larynx could be seen.

There has been some adhesion between the posterior palatine fold and the pharynx, with the result of narrowing the opening into the post nasal space. She does not cough and she has gained flesh rapidly.

While congenital syphilis may make its appearance at any time after birth, it is generally not so retarded as in the above case. J. N. Mackenzie * found, from an investigation that he made of this subject some years ago, that fifty-five per cent. of the cases occurred within the first year, and as many as thirty-three per cent. within the first six months. It occasionally happens, however, that its appearance is delayed until about puberty.

The disease may manifest itself in any form, but its most frequent manifestation is in deep ulceration of the soft palate, from which it extends to the hard palate and post-nasal space, showing a tendency to attack the bones, producing caries and necrosis.

The larynx, although frequently the seat of congenital syphilis, is not so often affected as the soft palate and pharynx, and, in the opinion of Bumstead,† it is always secondary to the pharyngeal lesions, the pharyngeal ulcerations preceding or coexisting with the laryngeal lesion. Mackenzie,‡ on the other hand, believes that the laryngeal lesion occurs much more frequently than is generally supposed, and he states that we may look for an invasion of the larynx in congenital syphilis with as much confidence as in the acquired variety.

The Iowa Board of Medical Examiners.—This board has ordered that on and after July 4, 1898, no medical school shall be considered as of "good standing," for the purposes of registration of its alumni within the State, unless it has a four-course curriculum. Each course of attendance upon medical lectures must be not less than six months long, and two courses in the same year will not be held equivalent to two courses.

Mathews's Medical Journal.—This is the title of a new quarterly, devoted to rectal and gastro intestinal diseases, to be edited by Dr. Joseph M. Mathews, of Louisville. It is announced that the first number will be issued as soon as possible after the first day of January, 1894.

* *American Journal of the Medical Sciences*, October, 1880.

† *Pathology and Treatment of Venereal Diseases*, Philadelphia, 1879, p. 754.

‡ *Op. cit.*

THE

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GRATUITOUS MEDICAL SERVICES.

It is a time-honored custom among members of the medical profession for each one of them to render unto each of the others, and to the various members of his family, professional services without expectation of fee or reward in any shape. This is well known to all our readers, and is really an integral portion of the creed that every medical man cherishes. The exception only proves the rule. We regret to have to confess that a few instances have come to our knowledge of late years in which members of the medical profession, waxing sordid as they grew prosperous, have followed the practice of charging half-fees to their professional brethren; this they have done not timidly or covertly, but rather boastfully. Such a course of conduct we regard as wholly damnable. There is no member of the medical profession, however humble his position in life may seem to be, who may not some time have it in his power to make adequate return for medical services rendered to himself or to his family, either to him who has rendered them or to some one dear to him. Therefore, by all means let the prevailing custom be adhered to invariably until its abolition is openly resolved upon. However, while every physician expects to receive for himself and for his family the best professional services of any and every colleague, he does not in most instances rest wholly upon the chance, great as it may be, of his some time being able to return them in kind; it is customary for him, especially in cases of severe or long-continued illness, to offer a little gift to the professional brother to whom he is indebted, not necessarily of adequate intrinsic value, but expressive of his appreciation and gratitude.

On a par with physicians needing medical services for themselves or their families are the deserving poor in the community at large, and it is the pride and pleasure of every true physician to render to such persons the most assiduous care of which he is capable, without any expectation or hope of reward. To the credit of these persons be it said, they often recompense the physician by some gift, and the gift is cherished not in proportion to its costliness, its beauty, or its utility, but as representing a sentiment grateful to every upright human being. Of what is a young physician prouder than of some trinket to which, in the presence of a professional brother, he may point and say: "That was given to me by a 'g. p.'"—meaning a grateful patient? It must happen over and over again that patients are moved to give a physician some such testimonial, but hesitate either on account of being unable to decide upon a suitable present or by reason of dread lest the gift may be resented. Some such hesitation was lately expressed by a Brooklyn lady who unbosomed herself to the editor of the

Sun, to whom she wrote that she, being a married woman, but separated from her husband, had, together with her children, been treated by an unmarried physician, who refused to accept payment for his services. She added that she kept a small gentlemen's furnishing store, and asked the editor's opinion as to whether or not it would be proper for her to give the physician a present, and, if it was proper, what she should give him. The editor's answer to this lady's letter is one of the most graceful tributes ever paid to the medical profession. It runs as follows:

"We fully appreciate the delicacy of feeling with which this question is put to us. It calls our attention also to a praiseworthy feature of medical practice. Possibly physicians form the most truly charitable section of the community, not on the strength of that rule of professional etiquette which requires any practitioner to treat a brother's family gratis, but because of the very great extension of this habit to persons of no professional connection, for no other reason than that of downright, straightout kindness of heart. The medical profession is instinctively possessed of the sense that it holds to an unusual extent a trust for the benefit of humanity, and that scarcely any man can call on it in vain. It is eminently proper that this married woman should give some little practical expression of her indebtedness to this unmarried doctor. Friendship such as is due from her to him brooks no merely conventional restraint on account of the particular relations existing between the wife and her husband. The circumstances of the doctor's help and the happy time of the year both indicate a reward of some sort. Let there be a Christmas present by all means, though as to what it should be we can only suggest to our gentle friend, the shopkeeper, that while practical usefulness is never to be despised, yet human nature is such that, as the crude utility of a gift increases, sentiment is apt to decline in proportion."

TUBERCULOUS PERITONITIS CURED BY THE INTRA-PERITONEAL INJECTION OF CAMPHORATED NAPHTHOL.

We learn from the report of a recent meeting of the Hospital Medical Society of Paris, published in the *Union médicale* for October 31st, that M. Rendu presented a woman, twenty-five years old, whose health at that time appeared quite satisfactory. It was noticed that her abdomen was normal, supple, and free from ascites. The case was an example of recovery from tuberculous peritonitis. Last January she entered the hospital for a febrile erythema nodosum, and ten days later she left quite well. She returned on the 15th of May, pale, emaciated, and with a rather pronounced ascites. She had alternating diarrhœa and constipation, diffuse abdominal pains, and evening fever. Below the umbilicus a zone of dullness was perceived, shifting in accordance with her change of posture and fluctuation was clearly elicited. Above the umbilicus palpation gave the sensation of a diffuse pasty condition. The lower limbs were œdematous. The heart was normal. The urine was free from albumin. The liver was not enlarged. By exclusion tuberculous peritonitis with an insidious onset was

diagnosed. The pleuræ began to be affected; there was a little effusion in each, less abundant on the left side. Examination of the lungs revealed hardly more than a little harshness of respiration and a little increase of vocal resonance at the apex of the right lung. The patient coughed but little and did not expectorate at all. The pleural effusion confirmed the diagnosis of tuberculous peritonitis, for since M. Godelier's and M. Fernet's contributions it has been known, said M. Rendu, that the pleura is often attacked in consequence of tuberculous peritonitis.

Before proposing laparotomy M. Rendu, on the 22d of May, punctured the abdomen and withdrew about four fifths of the liquid, making about six quarts. Immediately after the puncture he injected into the remaining liquid five hypodermic-syringefuls of pure camphorated naphthol. During the two or three succeeding days the patient experienced dull pains in the abdomen; moreover, on the day following the puncture the temperature rose to 104° F., and she had nausea and a little diarrhœa. All these symptoms disappeared rapidly, and the ascites was not reproduced. After that, abdominal palpation gave the sensation of a diffuse resistance produced by agglutinated intestinal coils. About the 15th of June the subumbilical region became soft, but there was still to be felt in the region of the stomach a diffuse, irregular, nodular mass, which seemed to be constituted by thickened and indurated omentum. On the 15th of July the patient was fairly advanced in convalescence; a node, however, about as large as a nut was still to be felt in front of the stomach, but by about the 15th of August no traces of it remained and the abdomen was absolutely supple. During this time the pleural effusions had been completely resorbed. After that the patient's general health had remained excellent and she had gained weight and appetite. In short, she might be considered as absolutely cured. M. Rendu was therefore of the opinion that before a patient with tuberculous peritonitis was subjected to so important an operation as laparotomy it would be well to try intraperitoneal injections of antiseptic liquids.

MINOR PARAGRAPHS.

AIR EMBOLISM.

In the nineteenth of a course of lectures delivered by Dr. David W. Cheever, professor of surgery in Harvard University, and published in the *Boston Medical and Surgical Journal* for November 16th, we find the subject of air embolism treated of substantially as follows: One of the most distressing and rapidly fatal accidents that can occur in a venous wound is the entrance of air. It must be a large vein to admit it. It is sucked in in inspiration. That is the case in the larger veins about the neck, which have no valves, and is especially the case when the mouth of the vein happens to be held open after it is cut by being attached to a fascia, as about the neck, in the popliteal space, in the groin, etc., but especially in the neck. When, for example, the surgeon is engaged dissecting out a tumor in the subclavian triangle, everything is done more easily if the parts are on the stretch. The tumor is lifted to dissect it out; the parts beneath are on the stretch. They are out of sight

and very probably displaced by the growth of the tumor. The vessels may be enlarged as well as displaced by the long-continued pressure of the tumor. It is, then, easy to understand how it frequently happens that the surgeon, in dissecting out the tumor, cuts through the fascia and the wall of the vein; the patient, making an inspiration, draws air into the vein, and the immediate consequence is what is sometimes called air embolism—that is, the air rushes down into the right cavity of the heart and appears in some way to obstruct immediately the action of the valves, either by displacing the blood and causing a froth, or by churning up the blood; at any rate, the immediate effect on the heart is terrible and disastrous. The patient gasps, paleness and lividity come on, and death takes place in a very short space of time.

The best treatment, of course, is the preventive treatment, and there are two ways that may be used—either an assistant must be ready to thumb any vein, that may be opened, and keep his thumb right about the subclavian region while the operation is going on, or another expedient may be used, which is to keep the bottom of the wound thoroughly wet in a puddle of some antiseptic fluid. Either of these measures is a safe one.

When the accident occurs it is generally fatal. One or two bubbles of air occasionally go in and do not make enough trouble to destroy life, although there are temporary faintness and palpitation. The sound of the air entering is usually quite distinct. It is sucked in with a gurgle; the surgeon at once becomes conscious of the fact and compresses the vein, injects ammonia or brandy, promotes artificial respiration, and, in a slight case, succeeds in saving life, but not in the severe ones.

THE WISDOM TEETH AND THE TONSILS.

In the *Mercredi médical* for November 15th there is a paper which was read before the Bordeaux Society of Medicine and Surgery by Dr. Dunogier, who related a case of relapsing anginalitis caused by the eruption of the lower wisdom teeth and a case of chronic amygdalitis kept up by difficulty in the eruption of a wisdom tooth. The treatment of such cases, the author remarks, is of two sorts—preventive and curative. In regard to the practice of extracting the first molar tooth at about the eleventh year of age, he confesses that he does not share the apprehensions that have led some of his *confrères* to advocate that procedure, and he adds that he has never seen the regularity of the dental arch interfered with by allowing the tooth to remain. Moreover, he does not consider that complications due to the appearance of the wisdom teeth occur often enough to call for the extraction of the first molars as a preventive. Curative treatment, of course, consists in doing away with the cause, meaning not necessarily the tooth, unless it deviates, but the gum. In some cases the application of chromic acid has succeeded, but this agent is not to be advised in general, because, although it is undoubtedly efficacious, it acts much too slowly. The Paquelin canter and the galvanic cautery, although much easier to manage than the old actual cauteries, are not to be preferred to excision. Early in his practice the author tried excision with the bistoury and curved scissors, but the operation was very inconvenient, so that he has of late employed an instrument made specially for the purpose—a sort of *emporte-pièce*—which he showed at the meeting. After the gum has been anesthetized by means of tampons of cotton soaked in a solution of cocaine, the blade is slid under the gum covering the tooth as far as possible and the tissue divided. Gargling for a few times with antiseptics and cauterization of the neighboring ulcerated and inflamed parts with chromic acid complete the cure. Chromic acid applied to the gums

causes little or no pain, even without the previous use of an anæsthetic, and the acid has, moreover, the advantage of not in any way changing the color or structure of the teeth.

THE USE OF BORIC ACID IN TYPHOID FEVER.

The *Union médicale* for November 7th gives a *résumé* of an article by Dr. L. Tortchinsky, published in the *Gazette hebdomadaire de Bordeaux*. The author used boric acid in two hundred and forty cases of typhoid fever in the course of an epidemic, and reports excellent results; only nine patients died, and they succumbed during the period of convalescence because they got out of bed too soon or committed errors in diet. The two hundred and thirty-one other patients made a rapid and complete recovery. In all the cases the patients were given a dose of castor oil with from five to ten drops of oil of turpentine. After this mixture had operated the administration of boric acid was begun, the remedy being given internally, either in powder or in solution, in doses ranging from twelve to fifteen grains for an adult three or four times a day. When there was bronchitis the boric acid was associated with expectorants and with hydrochloric acid. As a general rule, at the end of from three to five days the fever and the diarrhoea underwent a noteworthy diminution, the tympanites disappeared, the dejecta lost their odor and became normal in appearance, the urine became abundant and in every way normal, the tongue and skin grew moist, and the general condition was good. As soon as the amelioration was well marked the use of the acid was discontinued and tonics were ordered. Under the influence of this treatment the disease followed a favorable course, its duration was somewhat diminished, and complications were very rare. The most decided effects were obtained in cases treated early. The author has found that the effects of the boric-acid treatment may be increased by combining with that drug small doses of acetanilide, quinine, naphthaline, or salol. The mixture with quinine is especially useful in the last stages of the fever, when there are ataxia, delirium, and other cerebral symptoms; it is useful also in cases of relapse. The author has never observed any harmful effect from the use of boric acid. He has also produced satisfactory results with this acid in the treatment of the summer diarrhoea of children.

BASOPHOBIA.

The *Medical Week* for November 24th states that Professor Debove reported at a recent meeting of the Hospital Medical Society of Paris a peculiar disturbance of locomotion in which there is complete loss of the power of walking or standing erect, due to emotional causes, although the strength of the muscles concerned is not appreciably diminished. A woman, aged forty-eight years, had these peculiar symptoms as the result of a violent emotion. During ten years she gradually went from bad to worse until her admission to the hospital, when she could not walk without assistance, though she could go from one end of the room to the other if somebody held her by the hand. In the recumbent posture she had no difficulty whatever in going through all the voluntary movements she was asked to perform. General and special sensibility were intact, and there was no impairment of the muscular power. The knee reflex was absent on both sides, but she presented no other symptom of tabes, and there was no evidence of hysteria. There was a certain resemblance between the symptoms observed in this patient and those of agoraphobia, from which they differed, however, in the absence of the feeling of anxiety characteristic of the latter affection. Moreover, the inability to

walk or stand erect was present as well in a closed room as in open spaces. In astasia-abasia there is an absolute impossibility of walking or assuming the erect posture, with no impairment of the muscular power or inco-ordination of movements, and it seems to indicate a loss of memory of how to walk; these patients experience no fear or anxiety on endeavoring to perform the movements of locomotion, hence no amount of encouragement or assistance will enable them to walk or stand. On the contrary, basophobias are perfectly cognizant of the fact that the difficulty they experience in assuming or maintaining the erect posture is due to a feeling of apprehension that they are unable to overcome.

RECOVERY AFTER FRACTURE OF THE BASE OF THE SKULL.

In a recent number of the *Lancet* Dr. D. L. Davies reports a case which recently came under his notice, to show that fracture of the base of the skull in elderly people does not always involve an unfavorable prognosis. The patient, a woman fifty-six years of age, was struck by a stone weighing nearly fifteen pounds, which had been dislodged from a cliff about forty feet high. The stone struck on the woman's cranium in an oblique direction at a point three inches above the base of the mastoid process of the temporal bone. A hematoma formed over the part struck, and a fracture extending downward and across the base of the skull through the petrous portion of the temporal bone was diagnosed. There was bleeding from the right ear and there was vomiting of dark blood. The patient recovered consciousness in three hours, and the vomiting ceased in about twelve hours. She had attacks of hemorrhage from the ear on several occasions during the first three weeks, and some cerebro-spinal fluid oozed for the first week. There was also oozing of blood through the orifice of the Eustachian tube. The treatment carried out was the one usually prescribed, with the exception of plugging the ear, as is often done where there is hemorrhage. The ear was syringed with a weak carbolic-acid solution, and then filled up with either boric acid or iodoform. The author is satisfied that if the ear had been plugged fatal compression would have been produced, and that in all cases it is wiser to allow the blood to escape externally. At the end of six weeks the patient was able to take a trip of two hundred miles by rail, and reported that she felt well and had no headache.

THE PREVALENCE OF TYPHOID FEVER IN DUBLIN.

TYPHOID fever always prevails more or less in Dublin, and there seems little chance of improvement until a proper main drainage scheme has been carried out. The corporation has adopted a scheme, but, singular to state, there is no provision for subsoil drainage, and typhoid fever will never be eradicated or lessened until arrangements are carried out for pumping away this water as it collects; otherwise large portions of the city are waterlogged. Sir Charles Cameron, medical officer of health for Dublin, considers that the disease, in Dublin at least, is of a miasmatic character. This year it has been more fatal than in 1892, and for the September quarter of the year seventy deaths were ascribed to the disease, against twenty-nine for the third quarter of each of the past ten years. So that, despite the various sanitary improvements that have taken place for the past ten years in house drains, scavenging, etc., and the fact that the water supply is of a pure character, yet the disease seems to increase and exists in Dublin to a much greater extent than is the case in a great majority of British and Irish towns. There seems to be a growing belief that, besides a better main

drainage and an arrangement for soil drainage, there should be a house-to-house inspection of the drains (which should be put in order when necessary) by competent sanitary engineers.

THE BACTERIOLOGY OF CHOLERA.

The *Lancet* for November 25th contains an article on the bacteriological interpretation of cholera in England. The bacteriologist, says the writer, has commonly no difficulty in affirming certain attacks of illness to have been Asiatic cholera; on the other hand, there are not a few cases which, from the bacteriological point of view, are declared to be unquestionable examples of cholera that have not always appeared to be such, judging from the clinical phenomena, the antecedent history, and the surroundings. It is in its negative aspects that the testimony of bacteriology with regard to cholera is even more unsatisfactory. Many experienced observers who have devoted exceptional attention to the clinical diagnosis of cholera have met with cases presenting clinically and pathologically all the characters of Asiatic cholera and occurring, moreover, at times when, and in localities where, true cholera was rife, but which nevertheless have afforded no evidence whatever of the presence of Koch's comma bacillus. It is facts of the latter class that tend to influence certain pathologists who, while accepting Koch's comma bacillus as an everyday concomitant of cholera, have hesitated in accepting that vibrio as the *causa causans* of the disease. Facts of an allied sort have led to considerable difficulty in distinguishing between cases of true cholera of the Asiatic type and rapidly fatal attacks of so-called English cholera. A considerable study is being made at present with reference to the exact connection which exists between Asiatic cholera and Koch's comma bacillus.

THE TREATMENT OF LOCOMOTOR ATAXIA WITH PHOSPHATIC INJECTIONS.

This method of treatment has of late been successfully used in Brussels and Geneva in advanced cases of locomotor ataxy. Dr. Forbes Winslow, in a recent communication to the *Lancet*, corroborates the reports of its efficiency and details notes of a bad case cured by injections of phosphate of sodium. The patient was seen by the late Sir Andrew Clark, who regarded the case as incurable. The injections were made in the neighborhood of the spinal column, and when twenty-five had been given marked improvement was visible, and after the fiftieth injection the patient was completely cured. Dr. Winslow states emphatically that in a certain class of cases where locomotor ataxia exists, as well as in some forms of mental disorder, absolute cures have taken place, and in cases in which the prognosis appeared grave and unfavorable. Messrs. Burroughs and Wellcome prepare tabloids which contain, we understand, ten centigrammes of the phosphate of sodium as the active ingredient.

FOOTBALL AS A FORM OF ATHLETICS.

The *Boston Medical and Surgical Journal* for November 23d concludes an editorial article on football as follows: "We have no prejudices against fencing because it comes to us from France, against golf because its home is in Scotland, nor against polo, hunting, and football because they are adopted from England. A sport which has nothing more than fashion to recommend it will not hold its own. Though football as now played really seems to us a poor game for a large number of spectators, it is, we believe, not likely soon to lose its hold upon its vota-

ries, and that because it has many intrinsic merits as a manly sport. We ourselves prefer the golf stick or the tennis racket, but we are forced to admit that we are quite beyond a certain age, and we are also willing to admit that there was a time when wallowing in the mud, even as a substitute, would not have been thought inglorious."

THE END OF AN UNCALLED-FOR ACTION AT LAW.

LAST Saturday Commissioner Fairchild, sitting in Buffalo, dismissed an action that had been brought by Mr. Anthony Comstock against a firm engaged in the manufacture of surgical tables for having sent through the mails circulars illustrating their wares by means of pictures showing nude persons in various attitudes on their tables. We are informed that these delineations are reproductions of those published in the reading-matter of different reputable medical journals, and that the circulars are sent to members of the medical profession only. That being the case, it does not seem to us that Mr. Comstock was justified in his attempt to suppress them.

NEUROTIC ENURESIS.

In the *Neurologisches Centralblatt* Dr. Freund describes a condition which he finds present in a great many cases of nocturnal incontinence of urine. It consists of hypertonicity of the lower extremities, which often exists in a very great degree without any other sign of functional disturbance. On attempting to separate the child's legs a sense of resistance is experienced, which, however, is gradually overcome, the condition appearing to be one of spasm of the adductor muscles. This symptom has been found by the author to be present in about half the cases of enuresis examined by him.

THE BRITISH MEDICAL JOURNAL.

In the issue of that journal for December 2d the editor writes charmingly of the net results of his visit to this country. He is evidently full of pleasant memories of his trip. He has made arrangements for special correspondence from New York, Philadelphia, and Chicago, as to the doings and thoughts and the best aspirations of the American profession. These, he says, are the results of the gracious invitation and most courteous and warm reception which were extended throughout the States to the representative of that journal.

THE TRI-STATE MEDICAL JOURNAL.

This is the title of a new monthly journal published in Keokuk, Iowa, and edited by Dr. James Moores Ball and Dr. George Edward Marshall, the first number of which is dated December 18, 1893. The issue consists of twenty-eight large octavo pages of reading matter arranged under the heads of original articles, of which there are five, editorials, book notices, historical and biographical sketches, and miscellany. The new journal presents a creditable appearance and is adorned with the picture of an ancient bust of Hippocrates.

THE NEW YORK STATE BOARD OF LUNACY.

THE letter signed "Physician" which we publish in this issue seems to be a fair index of the indignation felt by the medical profession at the treatment recently received by the superintendents and governing bodies of the State hospitals at the hands of the Board of Lunacy. Before commenting at greater length on the matter, however, we think it proper to

wait a while to see what justification or palliation of the board's action may come to light.

PULMONARY CONSUMPTION AND THE CITY BOARD OF HEALTH.

THE interest lately manifested by the board in measures that it is hoped will limit the prevalence of pulmonary consumption, as shown by Dr. Biggs's report published in our last issue, is most commendable. One need not pin his faith to every detail of the measures recommended in the report, for nothing but experience in their operation can settle questions pertaining to their utility and practicability. The board can, we think, be trusted in such matters, and it is to be hoped that it will be enabled to enter upon an earnest attempt to stay the ravages of tuberculosis.

THE DIURETIC PROPERTIES OF THEOBROMINE.

THE *Medical Week* for December 1st states that at a recent meeting of the Therapeutical Society of Paris, Dr. Hallopeau said that he had administered theobromine in general oedema that had resisted all other remedies. The oedema had disappeared under the influence of four doses of fifteen grains of theobromine, although the diuresis was not excessive. The result had been permanent.

ITEMS, ETC.

The Newark, N. J., German Hospital.—This institution was last week presented with an annex, to be known as the Trefz School for Trained Nurses. It is a three-story building containing in its upper portion rooms and generous accommodations for fourteen nurses. There are also training appliances and a lecture-room. The lower parts of the building will be fitted up for a general storeroom for the hospital. The annex is the gift of a wealthy German lady of Newark. The cost is estimated at \$20,000. An address was delivered by Dr. C. F. J. Lehlbach.

Tufts College Medical School.—This new venture, in Boston, is designed for both male and female students. The first year's class contains over seventy pupils. The school has temporary quarters at No. 188 Boylston Street.

St. Luke's Hospital.—Dr. Van Horne Norrie has been appointed an attending physician, to succeed Dr. George L. Peabody.

Change of Address.—Dr. Samuel W. Lambert, to No. 110 East Thirty-fifth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 3 to December 9, 1893:*

SMITH, ALLEN M., First Lieutenant and Assistant Surgeon, is granted leave of absence for four months, to take effect on or about January 4, 1894.

CLEARY, PETER J. A., Major and Surgeon. The leave of absence granted on surgeon's certificate of disability is extended four months on surgeon's certificate of disability, on condition that he report in person to the commanding officer, Army and Navy General Hospital, Hot Springs, Ark., on or before December 11, 1893, for treatment therein.

BROOKE, JOHN, Major and Surgeon, is granted leave of absence until February 22, 1894.

TEN Eyck, BENJAMIN L., First Lieutenant and Assistant Surgeon, is assigned to station at Fort McIntosh, Texas, for field duty in the Department of Texas.

By direction of the President, the retirement from active service this date, December 4, 1893, by operation of law, of PAGE, CHARLES, Colonel and Assistant Surgeon General, under the provisions of the act of Congress approved June 30, 1892, is announced.

WILCOX, CHARLES, First Lieutenant and Assistant Surgeon, will be relieved from temporary duty at Angel Island, California, on the arrival there of POPE, BENJAMIN F., Major and Surgeon, and will report in person to the commanding officer, Boise Barracks, Idaho.

WINTER, FRANCIS A., First Lieutenant and Assistant Surgeon, is relieved from further duty at Fort Wingate, New Mexico, and from temporary duty at Fort Bayard, New Mexico, and will proceed to new Fort Bliss, Texas, and report in person to the commanding officer for duty at that station.

Society Meetings for the Coming Week:

MONDAY, December 18th: New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, December 19th: New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Medical Society of the County of Kings; Ogdensburg, N. Y., Medical Association; Baltimore Academy of Medicine.

WEDNESDAY, December 20th: New York Academy of Medicine (Section in Public Health and Hygiene); Harlem Medical Association of the City of New York; Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); Medical Societies of the Counties of Allegany (quarterly) and Tompkins (semi annual—Ithaca), N. Y.; New Jersey Academy of Medicine (Newark).

THURSDAY, December 21st: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, December 22d: New York Clinical Society (private); New York Society of German Physicians; Yorkville Medical Association (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, December 23d: New York Medical and Surgical Society (private).

Answers to Correspondents:

No. 418.—The action you mention was taken by the association several years ago, but we can not tell just when.

No. 419.—Dr. F. A. Packard gives the following formula for gluten bread in his article on Diabetes Mellitus in *Hare's System of Therapeutics*: Take one quart of sweet milk or milk and water, one heaping teaspoonful of good butter, one fifth of a cake of compressed yeast beaten up with a little water, and two eggs well beaten. Stir in the gluten flour until a soft dough is formed, knead as in making ordinary bread, put into pans to rise, and, when light, bake in a hot oven.

upon the presence of tubercle bacilli in the discharges. That without tubercle bacilli there is no tuberculosis is a statement familiar to all, but with the truth or falsity of that proposition I do not propose to deal in this communication; I wish to call your readers' attention, however, to a few facts bearing upon the converse proposition—viz., that the presence of tubercle bacilli in the discharges is sufficient reason for a diagnosis of tuberculosis.

A priori, it is supposable that any patient afflicted with an inflammation of the respiratory tract may expectorate matter containing tubercle bacilli, and that these may play no rôle whatever in his case. If they are the cause of tuberculosis, a certain period must elapse between their lodgment in the air-passages and the onset of pathological changes in the tissues. Their effect upon the tissues can not be instantaneous, and during the period of incubation there is no reason to suppose that the discharges may not contain bacilli. On the other hand, there is no reason to suppose that every one who takes tubercle bacilli into his respiratory tract will be affected with tuberculosis. The discharge from such a person may contain bacilli without subsequent development of tubercular lesions.

But my object is not to theorize, but to present a few facts bearing upon this matter which have come to my attention. I have observed two cases of syphilis of the throat which are worthy of record in this relation. One of the patients gave a history of cough and expectoration, extending through two or three months, which had resisted every treatment. The cough was stridulous and the voice hoarse. There was loss of flesh and strength, and there was dyspnoea on exercise. Examination of the throat revealed marked redness and swelling of the mucous membrane of the larynx, especially over the arytenoid cartilages, and a few scattered superficial ulcerations. Examination of the chest was not satisfactory, owing to the sounds transmitted from the larynx. There was no family history of pulmonary disease. I had treated this patient on former occasions for syphilis. No history of syphilis was obtainable, but the lesions had been sufficient to warrant that diagnosis, and treatment proved the correctness of the supposition. The patient had taken iodide of potassium nearly continuously up to the time when the cough began; it was said to have started after an exposure to cold. Notwithstanding my familiarity with the patient's constitutional condition, I was not disposed, without further evidence, to look upon the present symptoms as an outbreak of syphilis. The case impressed me as possibly one of tuberculosis. Therefore I procured some of the sputum and had it examined by Dr. C. S. Boynton, of this city. He reported the presence of tubercle bacilli in it. The results of the microscopical examination were positive. After a week or ten days I saw the patient again. The principal change was an increase of the dyspnoea, which at times was alarming. I ordered at once iodide of potassium in as large doses as could be borne. The symptoms began to abate after a few days, and after a few weeks the patient had entirely recovered. More than a year later the disease had not relapsed.

A few months later I saw another patient whose history was that of cough and progressive loss of flesh and strength for some weeks, whose symptoms had not been relieved by treatment. There was an imperfect history of syphilis. Examination of the chest was negative. There was a slight difference between the two sides at the apices of the lungs; but whether this was the normal difference or not could not be determined at once. There was some thickening and superficial ulceration of the mucous membrane of the pharynx above the soft palate, also some redness of the vocal cords. For further enlightenment I had the sputum sent to Dr. C. S. Boynton for examination. He reported positively the presence in it of

Letters to the Editor.

TUBERCLE BACILLI AND THE DIAGNOSIS OF TUBERCULOSIS OF THE AIR-PASSAGES.

BURLINGTON, VT., December 5, 1893.

To the Editor of the *New York Medical Journal*:

SIR: It is well known that there exists a disposition to make the diagnosis of tuberculosis of the air-passages pivot

the bacilli of tuberculosis. The patient was, however, put on the use of iodide of potassium and bichloride of mercury, and his throat was treated with nitrate-of-silver solution. After a few weeks the symptoms abated, and he was discharged from the hospital with an injunction to take the iodide for several months and to return if he experienced a relapse. I have not seen him since, and it is now more than a year.

Both these patients would have perished had the diagnosis suggested by the microscope's revelations been justifiable.

It may be objected that Dr. Boynton was in error when he reported the presence of tubercle bacilli in those specimens. If so, it was an error committed by a man competent to make such examinations, and the objection is one that would shake my faith in the revelations of the instrument at the hands of any observer.

I am aware that this subject is an old one, but it has seemed to me not altogether unprofitable to consume your readers' time in this way for a brief minute.

J. H. WOODWARD, M. D.

THE NEW YORK STATE COMMISSION IN LUNACY AND THE STATE HOSPITALS.

YONKERS, N. Y., December 11, 1893.

To the Editor of the New York Medical Journal:

SIR: Inclosed herewith will be found a few clippings from various newspapers published in this State containing editorial and other references to the pending controversy between the State Commission in Lunacy and the officers of the State hospitals.

One is amazed to find from the statement of the trustees of the Utica State Hospital that two members of the lunacy commission personally requested the superintendent of that institution to send to the commission estimates for certain things which, when received, were promptly disallowed. More than this, these same commissioners, one of whom is a physician, a former superintendent of a State hospital, a member of the American Medico-psychological Society (the successor of the Association of Medical Superintendents of American Institutions for the Insane), and a member of the New York State Medical Society, proceeded to state in a newspaper interview that by cutting off these and other items they had effected a great saving to the State!

No wonder that trustees and superintendents protest. It would be interesting to know upon what interpretation of the code of medical ethics the chairman of the lunacy commission officially requests a medical superintendent, a member of his own societies, to place items upon an estimate apparently for the express purpose of creating an opportunity to prefer, at least by implication, charges of extravagance and wastefulness against that superintendent, and then to draw attention through the newspapers to his own superior penetration, wisdom, and probity in detecting such extravagance and in so promptly checking it. Whatever else may be the merits of this controversy, it is perfectly evident to all respectable and self-respecting medical men that the superintendents of the State hospitals are entitled to the fullest support in their demand to be treated as gentlemen. Unhappily the position in which two at least of the commissioners in lunacy have been placed by their own utterances, and the reply thereto by the trustees of the Utica State Hospital, is not such as would be willingly assumed by any gentleman of my acquaintance, and indeed would almost make it appear as though the chairman himself were wanting in that nice sense of professional courtesy,

and dignity, and honor the possession and practice of which no physician has ever heretofore suspected to be incompatible with personal or official integrity and efficiency. PHYSICIAN.

Book Notices.

The Medical Student's Manual of Chemistry. By R. A. WITTHAUS, A. M., M. D., Professor of Chemistry and Physics in the University of the City of New York, etc. Fourth Edition. New York: William Wood & Co., 1893. Pp. xiii-543. [Price, \$3.75.]

THAT the fourth edition of this standard work has fifteen more pages than the third, published only three years ago, is not the sole indication of the additions that the author has made. Throughout the volume, especially in the chemistry of organic substances, there are changes that embody the latest discoveries in chemistry.

The present edition is deserving of the commendation bestowed upon its predecessors, and sustains the excellent reputation the work enjoys.

A Laboratory Guide in Urinalysis [sic] and Toxicology. By R. A. WITTHAUS, A. M., M. D., Professor of Chemistry and Physics in the Medical Department, University of the City of New York. Third Edition. New York: William Wood & Co., 1893. Pp. vi-99. [Price, \$1.]

THE author has taken the opportunity of the preparation of a third edition of his useful guide in urinalysis to introduce some new directions for qualitative analysis and to insist that all examinations of this character should be made with samples of the mixed urine of twenty-four hours. The directions for determining the constituents of the urine are given with the clearness and brevity characteristic of the former editions. If in a work of this character it is deemed necessary to give the antidotes for any of the toxic agents, we do not see why the author has omitted reference to the hypodermic injection of apomorphine wherever he has mentioned the stomach pump.

This little book will be found as useful to the practitioner in his daily work as to the student in the laboratory. The book, indeed, is better than its title. Properly, there is no such word as "urinalysis"; it should be *uranalysis*.

Chemistry and Physics. A Manual for Students and Practitioners. By JOSEPH STRUTHERS, Ph. B., Columbia College School of Mines, New York; D. W. WARD, Ph. B., Columbia College School of Mines, New York; and CHARLES H. WILLMARTH, M. S., New York. Series edited by BERN B. GALLAUDET, M. D., Demonstrator of Anatomy, College of Physicians and Surgeons, New York. Philadelphia: Lea Brothers & Co., 1893. Pp. vii-17 to 288. [*The Students' Quiz Series.*]

THIS volume is intended to serve as an auxiliary to the lectures the student hears and as a review work for teachers. The greater portion of the volume is devoted to chemistry, so that the part devoted to physics is meager. There is no reference to Montgolfier's theorem that is necessary to determine the rate of movement of air through a ventilating aperture, or to Mariotte's law, or to several other laws of physics that are likely to prove useful to the medical student.

BOOKS, ETC., RECEIVED.

A Manual of Diseases of the Nervous System. By W. R. Gowers, M. D., F. R. C. P., F. R. S., Consulting Physician to University College Hospital, etc. Second Edition, revised and enlarged. Vol. II, Diseases of the Brain and Cranial Nerves; General and Functional Diseases of the Nervous System. With One Hundred and Eighty-two Illustrations, including a large number of figures. Philadelphia: P. Blakiston, Son, & Co., 1893. Pp. xvi+1069. [Price, \$4.50.]

The Physician's Visiting List (Lindsay and Blakiston's) for 1894. Forty-third Year of its Publication. Philadelphia: P. Blakiston, Son, & Co.

The Child Physically and Mentally. Advice of a Mother according to the Teaching and Experience of Hygienic Science. Guide for Mothers and Educators. By Bertha Meyer, author of From the Cradle to the School, and other works. Translated by Friedrike Salomon. Revised by A. R. Aldrich. New York: M. L. Holbrook Co., 1893. Pp. x+155.

Recent Progress in Electro-gynecology. By G. Betton Massey, M. D., Philadelphia. [Reprinted from the *Journal of the American Medical Association*.]

Prevalent Errors in the Treatment of Diseases of Women. By G. Betton Massey, M. D., Philadelphia. [Reprinted from the *Therapeutic Gazette*.]

A New One-stroke Double-tincture for Leprosy and Tubercle Bacilli. By Dr. P. G. Unna. [Reprinted from the *Sheffield Medical Journal*.]

Three Kinds of Favus. A Paper read in the Dermatological Section of the Sixty-fourth Meeting of German Naturalists and Physicians held at Halle a. S., September 24, 1891. [Reprinted from the *British Journal of Dermatology*.]

Inflammation and Chemotaxis. By Dr. P. G. Unna, Hamburg. (Translated by C. Bernard Wolff, M. D., New York.) [Reprinted from the *St. Louis Medical and Surgical Journal*.]

The Pathological Signification of Immunity. By A. L. Chapman, M. D., Kansas City, Mo. [Reprinted from the *Kansas City Medical Record*.]

Albuminuria without Manifest Organic Renal Lesion. By Waldron B. Vanderpoel, M. D., New York. [Reprinted from the *Medical Record*.]

Treatment of True Croup by Intubation of the Larynx. By George McNaughton, M. D. Statistics of the Different Methods of treating True Croup. Compiled by George McNaughton, M. D., and William Maddren, M. D. Treatment of True Croup by the Sublimation of Calomel (Corbin or Brooklyn Method). By William Maddren, M. D. Read before the Medical Society of the County of Kings, November 22, 1892. [Reprinted from the *Brooklyn Medical Journal*.]

Report of the Surgeon General of the Army to the Secretary of War for the Fiscal Year ending June 30, 1893. Washington: Government Printing Office, 1893.

Transactions of the American Otological Society. Twenty-sixth Annual Meeting, Fort Griswold House, New London, Conn., July 18, 1893. Vol. V, Part 3.

Tratado Teorico-practico de Enfermedades de la Garganta (Laringe y Faringe). Por D. Federico Gomez de la Mata, Medico especialista, etc. Ilustrada con Grabados intercalados en el Texto. Madrid: G. Juste, 1894. Pp. 321-443.

Das seborrhoische Ekzem. Von P. G. Unna, Hamburg.

Zur Kenntniss der hyalinen Degeneration der Carcinom epithelien. Von P. G. Unna. (Hierzu Tafel 2.)

Mundpflege und Kali chloricum. Von P. G. Unna. [Sonder-Abdruck aus *Monatshefte für praktische Dermatologie*.]

Die Diaskopie der Hautkrankheiten. Von P. G. Unna. [Sonder-Abdruck aus der *Berliner klin. Wochenschr.*]

Zam Nachweise des Fibrins in den Geweben, speciell in der Haut. Von P. G. Unna. [Sonder-Abdruck aus *Monatshefte für praktische Dermatologie*.]

Ueber den Einfluss des Quecksilbers auf das papulöse Syphilid. Von P. G. Unna. [Sonder-Abdruck aus der *Berliner klin. Wochenschr.*]

Der Streptobacillus des weichen Schankers. Von P. G. Unna. [Sonder-Abdruck aus *Monatshefte für praktische Dermatologie*.]

Miscellany.

The Relation of General Disease to the Formation of

Cataract.—At a recent meeting of the Philadelphia County Medical Society Dr. G. E. de Schweinitz read a paper in which he said that the etiology of cataract was by no means always clear, and, independently of the studies which pertained to the pathological anatomy of opacity of the crystalline lens, much interest attached to the causes which might originate the clouding of its structure. He entirely omitted reference to the influence of age, sex, occupation, heredity, diseases of the eye, and accommodative strain, each and all of which were important factors, and desired to call attention to those cases which bore some relation to nutritive disturbances, which in their turn were dependent upon constitutional disease, or upon more localized extra-ocular conditions. It was evident that trustworthy information on this point could be obtained, had it been the custom of general practitioners to make as careful an examination of the transparent media and fundus of the eye as they did of other organs, in the study of the symptomatology of the cases of general disease which had come under their care. In the absence of such systematic examinations, ophthalmic surgeons were forced to gather the evidence, except in a few instances, from reports scattered here and there through the literature, many of which were valueless, inasmuch as they proved nothing more than probable coincidence. Therefore this topic had been introduced for the consideration of a general medical society, in the hope that it might stimulate research in this line. Doubtless useful data could be gathered were general practitioners and ophthalmologists—serving at the same time in large hospitals—to combine their efforts in the study of each case of constitutional disease from its beginning to its close. How much reliable information would thereby be added to the already large store of knowledge belonging to medical ophthalmology could only be imagined.

For convenience of study, he had arranged the cases in which this disease bore some relation to the formation of cataract into—

I. IDIOPATHIC FEVERS AND ALLIED DISEASES. (a) *Typhus and Typhoid Fever*.—It was a matter of common observation that the clinical history of cataract formation would not infrequently reveal that the patient referred marked failure of sight to some decided febrile disturbance, but it was difficult to prove that this had positively been the cause of the depreciation in vision. For example, Galezowski* had investigated 4,776 cataracts with reference to their etiology, and had attributed by far the greatest number—1,538—to age, as they had occurred between the sixtieth and the seventieth years. Therefore the majority had been representatives of a retrograde process in a changing organism. The remainder, exclusive of those which had occurred under the influence of injury and heredity, had been ascribed to excesses, accommodative strain, and finally to debility of the

* De l'étiologie de la cataracte. *Recueil d'ophth.*, 1883, p. 17.

body as the result of constitutional and febrile illnesses—that is to say, this debility had hastened the cataractous process.

A little more to the point, but none the less of indifferent value, were the observations by Trelat* on cataracts following typhoid fever, in which he described double, semisoft cataracts in a young girl which had begun to develop during convalescence from typhoid fever. Arenst† had examined two young people, brother and sister, who had developed double cataract, which had become total in one eye, after an attack of typhus fever. A good result after extraction had been secured. Fontan‡ reported three cases of post-typhoid cataract (cataracta punctata) which he believed had been the result of mechanical obstruction of the circulation. In two of the patients—one a man twenty-eight years old, and the other a woman forty-two years old—the cataract had progressed to maturity and had required extraction. There was no evidence from this paper, however, that Fontan had been aware of the condition of the transparent media before the typhoid attack.

(b) *The Exanthemata*.—As the malnutrition of typhus and typhoid fever might perhaps be responsible for lenticular opacities, also this was true of the various exanthemata, quite independently of the fact that these diseases might cause local inflammatory conditions which would determine the opacification. Romiëe,§ for example, had analyzed forty four cases of cataracta punctata, and had attributed the pathogenic cause to typhoid fever seventeen times, variola seven times, and scarlet fever three times. Chlorosis had been made responsible seven times, and the remaining ten instances had been ascribed to diverse maladies—suppuration, heart disease, rachitis, etc. The author sought to explain the lenticular opacities by an increase in the density of the serum and changes in the relation of the lens to the aqueous humor.

(c) *Whooping-cough*.—For the most part, the reports concerning the relation between whooping-cough and cataract formation were vague—for example, such indefinite cases as had been reported in pre-ophthalmoscopic days by Wright|| who recorded the case of a baby, aged eighteen months, who had been able to see for twelve months, then had had whooping-cough, and afterward cataract.

(d) *Malaria*.—Inasmuch as severe malarial fever of any type might be accompanied by lesions in the vitreous and the choroid—for example, hemorrhage, which after absorption left membranous opacities and areas of atrophic chorioiditis—there was no reason why cataract should not form. A more direct connection than this seemed doubtful. Bagot,^ however, described two cases in mulattoes who, directly at the close of a violent malarial illness, had suffered from diminution of visual acuity, and a few months later double soft cataract had been evident. After operative interference the visual acuity had returned to normal, and there had been no lesions in the fundus oculi.

(e) *Epidemic Influenza*.—During the prevalence of epidemic influenza, or *la grippe*, so fresh in the minds of all of us, a large amount of attention had been directed to the ocular lesions, and a great variety of affections, inflammatory and otherwise, which had occurred in the eyes of the sufferers had been attributed, and no doubt in many instances rightly, to the influence of this extraordinary disease. It would be out of place to attempt a review of the literature, which was very considerable

but, as an example of what had been observed, he would quote a single analysis—namely, that of Rampoldi.* Among five hundred and thirty-two eye patients whom he had seen during the months of February and March, 1890, there had been forty-eight who had acquired their ocular trouble during or after an attack of influenza. These affections had been acute conjunctivitis, conjunctival abscess, abrasion of the corneal epithelium, corneal infiltrations, corneal abscess, iridocyclitis, serpent ulcer, serous iritis, chorioiditis, detachment of the retina, and affections pertaining to the external and internal ocular muscles. Therefore it was not unlikely that this disease, producing such serious inflammatory lesions, might be followed by cataract, and this probably was the explanation of such cases as had been reported.

One case out of several which had occurred in his practice might be quoted: A private patient, a woman, aged fifty-five years, had applied for treatment on the 25th of July, 1891. She had been in good health except during the winters of 1890 and 1891, when she had had sharp attacks of *la grippe*. Following these, vision had begun to fail, associated with a dull, aching pain in the eyes. In the right eye there had been large striae in the lens down and in; the optic disc a vertical oval, of good color, but with undue broadening of the scleral ring. In the left eye there had been larger punctate opacities in the posterior cortical and also in the vitreous. No hemorrhages had occurred in the eye grounds. Previous to these attacks of *la grippe* the media had been clear. It was very evident that one of the common lesions of influenza had been present in this patient—namely, vitreous disease, which in its turn had been no doubt responsible for the formation of cataract that had since gone on to maturity in the left eye.

II. CONSTITUTIONAL DISEASES. (a) *Gout*.—This ubiquitous disease had been made responsible for a great variety of ocular affections, and, naturally, cataract had not escaped. Zychon† contributed an article upon the influence of gout in ophthalmic disorders. Michel, who abstracted the article in the *Jahresbericht f. Ophthalmologie*, vol. xvi, p. 318, somewhat sarcastically stated: "We know from Zychon's teacher, Galezewski, that gout has been made responsible for all possible and impossible eye diseases, and so we are not surprised when to the list of gouty ocular affections the following are added: Lithiasis of the lids, dry eczema, subconjunctival ecchymosis, conjunctivitis, calcareous degeneration of Bowman's membrane, scleritis and iritis, chorioiditis and cyclitis, retinitis and chorioido retinitis, cataract, glaucoma, arterial thromboses, muscular pelsies, and, finally, migraine." Now, in spite of Michel's unnecessary criticism of this author, many of these affections were undoubtedly gouty, and because the uveal tract fell under its baleful influence, cataract might be indirectly caused by this disease, but not, however, without the intervention of inflammatory lesions, which attacked those portions of the eye particularly concerned in the nutrition of the crystalline lens.

(b) *Rachitis*.—Punctate cataract—if the report of Romiëe‡ might be credited—sometimes occurred in connection with rachitis, and Nicati* brought the total number of cataracts (not congenital) which were sometimes found in children into ætiological relationship with rachitis.

One form of cataract, variously called zonular or lamellar, which anatomically consisted of a narrow zone of degenerative change in the lens fibers situated between the nuclear and cor-

* *Gaz. des hôpitaux*, 1879, p. 417.

† Zur Pathogenese des grauen Staars nach Typhus. Abstract, Nagel's *Jahresbericht*, 1885, vol. xvi, p. 428.

‡ *Rec. d'ophth.*, 3 série, 9, 1887.

§ *Journal de méd. de Bruxelles*, 1873, quoted by Fontan, *loc. cit.*

|| *Western Med. and Phys. Jour.*, Cincinnati, 1827-'28, 1, 428-431.

^ *Annales d'oculistique*, November, 1891, t. cvi, p. 338.

* *Ann. di ottalm.*, vol. xix, 1, p. 70; abstract, *Archives of Ophthalmology*, vol. xx, p. 295.

† De la goutte oculaire. *Rec. d'ophth.*, 1885.

‡ *Loc. cit.*

* Cataractes et lésions dentaires des rachitiques. Abstract, *Jahresbericht f. Ophthalmologie*, 1879, vol. x, p. 341.

tial areas, had often been attributed to rachitis. The true cause, however, was not certainly known. The congenital variety was probably due to some developmental defect; in the form arising in early infancy some fault in nutrition had occurred; most frequently the subjects were rachitic and presented the teeth and cranial asymmetry peculiar to this affection. A history of convulsions was common, and the dental defects which were present in the form of lines, furrows, or terraces, running transversely across the incisors or canines, were considered by Hutchinson to be due to the mercury which in all probability had been given for the convulsions, which in their turn had caused the cataract. Therefore the cause did not reside in rachitis itself, but in the frequent, severe, and long-continued convulsions to which its subjects were liable. Moreover, as Knies,* quoting Arlt, pointed out, the cause did not pertain alone to the general convulsions, but to the disturbance of the lens brought about by the severe ciliary muscle cramp which was said to be present in all universal convulsive affections. Such a result could obtain, however, only in the earlier years of life, while the process of development in the lens was still an active one.

(c) *Constitutional Syphilis*.—This disease, like other affections which were prone to attack the uveal tract, was not infrequently followed by secondary cataract as the result of disturbances in the nutritive processes of the eye. Some authors, however, had described so-called true syphilitic cataract. For example, Bos† recorded several examples from Badal's clinic, and referred to others which had been seen by Heller‡ and Romée.* He divided these cases into two classes: 1. Capsular cataracts which were associated with iritis, etc. 2. Lenticular or true cataracts, which were rare and directly due to syphilis. They were soft and appeared in the second period of this disease, presumably without the intervention of inflammatory processes in the ocular coats.

(d) *Diabetes*.—The usual answer to the question, "What is the most frequent ocular lesion in diabetes?" was "cataract." Ever since the observations of France,|| in England, and the still earlier ones of Mackenzie and Duncan, as well as those of von Graefe, up to the present time, an enormous amount of literature had accumulated with reference to the relation of saccharine diabetes to the formation of cataract, and to its influence upon operative interference in this disease. It had become the rule to examine the urine carefully for sugar in all cases of cataract, especially when it developed in young subjects, and it was well known that in fully one per cent. of the cases sugar would be detected, and, moreover, that the cataractous lenses of patients who were the subjects of diabetes mellitus occasionally contained sugar. From the experimental standpoint, especially the researches of Mitchell and Deutschmann, it was known that the injection of large quantities of salt or syrup into the tissues of the lower animals might cause opacity of the lens, the result probably of the extraction of water from the lens and interference with its nutrition. We also had in evidence the occasional spontaneous disappearance of diabetic cataract, in some instances corresponding with a diminution of the amount of sugar in the urine. Knies thus summarized the various theories which had been brought forward to explain the connection between diabetes and cataract.

* *Die Beziehungen des Schorgans und seiner Erkrankungen zu den übrigen Krankheiten des Körpers und seiner Organe*, Wiesbaden, 1893, p. 467.

† *Des cataractes syphilitiques*. Thèse de Bordeaux, 1884.

‡ *Wien. med. Wochenschr.*, 1877, p. 559.

* *Loc. cit.*

|| *Guy's Hospital Reports*, 1859, vol. i, p. 273.

It might result from: 1. A general marasmus. The objection to this hypothesis was that in very high grades of depraved nutrition occurring in diabetes quite frequently there was no cataract. 2. The abstraction of water from the lens by means of the sugar in the tissues, which, in fact, very frequently, if not as a rule, was found in the lens, and more often in the aqueous humor and in the vitreous. If this had been true, however, after a time all diabetics would suffer from cataract, which was not the case. Besides, as Leber had shown, both the opaque and the clear lens might contain sugar in diabetic patients, and Becker had described cases in which, in one eye, the cataractous lens had contained sugar and in the other it had not. 3. Finally, there was the theory that the sugar contained in the aqueous chamber underwent a change into lactic acid, which in its turn caused the cataract. This theory had no foundation, inasmuch as the aqueous humor was alkaline, even though there was diabetic cataract, and, in the second place, the opacity did not begin in the anterior cortical portions of the lens.

Tonching the pathology of this affection, and throwing some light upon the relationship between the disorders, Deutschmann* had examined four patients with diabetic cataract, finding proliferation of the layer of pigment cells on the posterior surface of the iris, a condition which had previously been described by Becker. In the lens there had been vesicular cells (*Blasenzellen*) and all the changes from normal uvea to complete nuclear disintegration. Deutschmann concluded that the opacity in the lens was due to a necrotic tendency of the epithelial structures, just as the same tendency was shown by all epithelial tissues in this disease. If the epithelium was normal no pathological process of diffusion took place, no matter if both vitreous and aqueous contained sugar, but when necrosis of the lenticular cells occurred abnormal diffusion currents were set up and produced opacity. Referring to these researches, and others like them, Knies pointed out that in certain cases the iris was more or less changed—sometimes atrophic, sometimes slightly inflamed—in other words, uveal-tract inflammations might be present in diabetes. The development of cataract, then, belonged not so much to the presence of sugar, but was an intoxication symptom—a species of self infection.

The relationship between diabetes and the formation of cataract, which had been accepted for many years, had recently been questioned in a publication of Mauthner's† His study included a large number of cases seen in Carlsbad. An editorial published in the *Medical News* for March 18, 1893, reviewed this paper, and from it the author extracted the following quotation as pertinent to the subject: "In most of the patients in which defects of vision were found, these could be as readily attributed to concomitant conditions, such as age, impaired nutrition, and other intrinsic influences. The number of cases of diabetes mellitus in which cataract exists will, at best, be found to be exceedingly small. It is pointed out that the peripheral striation of the lens sometimes found in diabetes, and especially in the inferior median quadrant, is quite common, and becomes progressively more frequent in individuals that have passed the fiftieth year of life. Among the influences that might be considered as favorable to the development of cataract are: The displacement of water in the fluids and tissues of the body by the presence of sugar; a diminution in the resistance of the walls of the blood-vessels as a result of the disturbances of the general nutrition; the development, as a result of the pathological me-

* *Archiv*, xxxiii, Abth. 2, p. 229.

† *Ambyopia diabetica*. *Internationale klin. Rundschau*, 1893, Nos. 6, 7, 9, 11, 16, 24, and 25; abstract, *Ctrbl. f. prakt. Augenheilk.*, August, 1893.

tabolism, of toxic substances that give rise to inflammation and degeneration; the marked marasmus; complicating or intercurrent affections. If the ocular changes were due to the loss of water, they should likewise occur in simple polyuria. It is more than doubtful that opacities of the lens result from the presence of sugar, for there is evidence that the lens normally contains sugar. The development of cataract in an elderly person whose urine contains sugar does not constitute sufficient ground on which to make glycosuria responsible for the loss of transparency of the lens, for it is known that in the large majority of cases of senile cataract the urine does not contain sugar. The conclusion is reached that the presence of sugar in the fluids of the eye does not lead to any disease of the organ of vision, and especially not to the development of cataract. In a small percentage of cases of diabetes mellitus, however, the excessive elimination of sugar and of water does lead to the development of cataract."

III. LOCAL DISEASES. (a) *Diseases of the Heart and Atheroma of the Vessels*.—From time to time diseases of the heart and of the blood-vessels had been brought forward to explain the existence of cataract. One of the earliest communications on this subject was a report, by Fournieux Jordan,* on the relation of cataract to heart disease. Nineteen cases were reported: Two patients had been under twenty years of age, seven between forty and fifty, five between sixty and seventy, and five past the seventieth year. These patients had suffered from various forms of organic cardiac lesion and had had cataract. Other than this, no relationship had been demonstrated; but, as would be noticed, the majority of the cases had been at that time of life when cataract was likely to occur in the absence of constitutional disorder. The cases, however, were quoted for the reason that it had been an attempt to gain some information in regard to the ætiology of cataract, and, as had been observed in other cases, there was an occasional relationship indicating that vascular disturbances were in some way responsible for opacification in the lens. Romée (*loc. cit.*) ascribed several cases of cataracta punctata to heart disease.

A more modern view of a somewhat analogous relationship was the theory of Michel, that circulatory disturbances, and particularly atheroma of the carotid, might be responsible for the formation of cataract. Michel† had come to the conclusion that opacity in the lens substance had been a symptom of a local or general disturbance, and that so-called senile cataract had depended upon sclerotic changes in the walls of the carotid. He had analyzed fifty-three cases; in fourteen patients there had been monocular cataract, with atheroma of the carotid on the same side; in fourteen there had been double cataract which had been more developed and had begun earlier on the side of the greater atheroma; in nine cases of double cataract these had developed simultaneously with a double carotid atheroma; and in eight cases of cataract there had been sclerotic change in the carotid, and on the same side the presence of a swelling in the thyroid gland or goitre.

Other observations on the same subject had been brought forward—for example, in the thesis of Karwat,‡ which added a series of cases confirming those already reported by Michel—

* *British and Foreign Medico-chirurgical Review*, 1857, vol. xix, p. 484.

† Ueber den Zusammenhang von ocularen Störungen mit Störungen im Circulationsgebiete des Carotis, *Sitzungsber. d. physik. med. Ges. zu Würzburg*, 1881, Nr. 6; and *Das Verhalten des Auges bei Störungen im Circulationsgebiete der Carotis, Festschrift zu Ehren Prof. Horner's*, 1881, S. 1; abstract, *Nagel's Jahresbericht*, vol. xii, p. 323.

‡ *Beiträge zur Erkrankung des Auges bei Karotisatherom*. Inaug. Diss., Würzburg, 1883.

namely, that there was a relationship between atheroma of the carotid and the formation of cataract.

On the other hand, Becker,* with the help of Adolf Weil, had examined fifty-three cataract patients, among whom disease of the carotid had been evident in only sixteen; in the other thirty-seven it had not been present. Among the sixteen had been six persons with atheroma more developed on the side of the lens first affected, and in the remaining ten this had not been the sequence of events. Moreover, this had been found only in individuals who had passed the fortieth year. In all four cases of one-sided cataract the condition of the circulation in general, and especially of the carotid, had been normal.

(b) *Nephritis*.—Naturally, the various types of so-called Bright's disease, and the widespread lesions which they might produce throughout the body, had been brought into connection with the formation of cataract. Deutschmann,† after reporting twenty-one cases of lenticular opacity in which he had found albumin seven times, and six times established the presence of nephritis, had called attention to the possibility of a connection between the two diseases. Still later, in 1881, the same observer‡ had found among fifty-three cataract patients 9.5 per cent. cases of Bright's disease, and again referred to the relationship between albuminuria and the development of lenticular opacities, quoting Becker, who had in a communication disputed his conclusions, and yet had found from two to eighteen per cent. of the patients suffering from albuminuria. In still a later communication Deutschmann* reported the examination of two hundred and thirty patients with uncomplicated cataract, among whom five per cent. had been undoubtedly nephritic and 11.1 per cent. probably affected with Bright's disease.

This communication had been followed by one from the pen of Landesberg,|| who described the examination of three hundred and seventy-six patients with uncomplicated lenticular opacity, finding sugar alone in the urine of three of them, sugar and albumin in two, and albumin in forty-four—therefore three hundred and twenty-seven with normal urinary analysis and forty-nine abnormal—and concluded very properly that albumin and cataract might be associated as a coincidence, but that the presence of albumin did not necessarily mean the existence of Bright's disease.

In 1886 Rothziegel^ had found albumin in more than half of his patients, and attributed this large percentage to the fact that he had examined them at many intervals during the day. He described fifteen cases of chronic nephritis with cataract, and commented upon the arterial lesions which might be present, and particularly atheroma of the carotid.

Finally, the author referred to the researches in 1887 of Eretzky,¶ who, desiring to investigate the trustworthiness of Deutschmann's albuminuria theory, had divided his methods into three portions: 1. He had examined two hundred cataract patients for albumin. Of these, thirty-five had been under fifty and one hundred and sixty-five over fifty. In thirty-eight he had found albumin—that is, in nineteen per cent. of the cases. In sixteen patients the albumin had been a constant feature, and in nine per cent. there had been albumin and tube casts, and these usually in patients under fifty years of age. 2. He had examined ninety-seven patients with chronic nephritis,

* *Zur Anatomie der gesunden und kranken Linse*, Wiesbaden, 1883, p. 184.

† *Graefes Archiv*, 1879, xxv, Abth. 4, p. 24.

‡ *Ibid.*, xxvii, Abth. 1, pp. 315-317.

§ *Ibid.*, 1883, xxix, 2.

|| *Ibid.*, xxx, Abth. 4, p. 143.

^ *Allg. Wien. med. Zeitung*, Nr. 30, 1886.

¶ *Archives d'ophtalmologie*, July and August, 1887.

seventy under fifty and twenty-seven older, and had found the following eye complications: Albuminuric retinitis, cataract, posterior synechia, opacities in the vitreous, detached retina, and synchysis scintillans. Cataract, always incipient, had been found in eight patients, or 8.2 per cent., and one of these had an anterior polar cataract which had existed for many years, while seven of the cases had been in old people. 3. He had examined five hundred and eighty-four old people with the ophthalmoscope, and had found two hundred and four, or 45.2 per cent., with cataracts, usually incipient. Of these, there had been 20.9 per cent. in the sixth decade, 43.75 per cent. in the seventh decade, 52.6 in the eighth decade, and 66.6 per cent. in the ninth decade. Their urine had been examined, and in fifty-nine patients, or 10.5 per cent., albumin had been found, and in 1.6 per cent. tube casts. Of the cataract cases, 10.5 per cent. showed albumin; of the non-cataractous cases, 9.8 per cent. True nephritis had been found among the cataractous patients in 0.8 per cent. of the cases, and in 2.1 per cent. of the non-cataractous patients. Therefore he concluded that albumin did not mean nephritis; that nephritis and cataract might combine; that in young nephritics there was no cataract, and in old ones usually not more than in those who were without the signs of Bright's disease.

Thus it would be seen that while it was of the utmost importance, both in determining the prognosis of the affection and also that of operative interference, to examine the urine of every cataract patient, and while albumin and sometimes tube casts might be found, no causal relation had been positively established between nephritis and cataract.

(c) *Nervous Diseases*.—We had already determined that zonular cataract, which had been found in association with rhachitis, was more likely due to convulsions, or to local cramp in the ciliary muscle, than to the disease itself. In like manner, those examples which had been found in connection with other complaints, more particularly belonging to lesions of the nervous system—for example, epilepsy—were explainable by the presence of convulsive disturbances. Thus Logetschnikow* described fifteen patients between the ages of sixteen and thirty-seven who had suffered from general clonic convulsions and had developed total cataract. Their vision had been good, with the exception of one patient, before these nervous phenomena had manifested themselves. He discussed the possibilities of other causes for cataract and practically eliminated them, and concluded that the development of cataract was in relationship not alone with the convulsive seizures, but with the nervous lesion which was the basis of the convulsive efforts.

Meningitis had been made responsible for the formation of cataract in young individuals. Bock† had reported five patients, between the ages of thirty-four and thirty-nine, who had suffered from cataract, had undergone an operation, and had secured good vision. He had excluded other causes of lenticular opacity except the likelihood that the disease had followed the meningitis from which they had suffered. Examination of the eye grounds seemed to show that two might have had optic neuritis, but none the less they had done well after operation. There had been no convulsions.

Sewill‡ reported an interesting case of a patient with orbicularis spasm on the right side of the face and the development of cataract. The spasm had been caused by a carious tooth, and had ceased on its removal. He referred to trophic changes in connection with the trigeminal ganglion as a possible explanation of these phenomena.

(d) *Diseases of the Skin*.—Mooren, quoted by Norris, asserted that chronic skin eruptions might favor the development of cataract by causing creeping inflammatory processes within the eye, and Förster believed that it was not impossible that chronic skin affections might favor the development of a depraved nutrition, which in its turn produced cataract by alterations in the nutrition of the lens.

Rothmund* described an unnamed exanthem, the pathological anatomy of which had been a chronic parenchymatous inflammation of the skin, the papillary layer and rete Malpighii having been chiefly affected, which had appeared in a number of children and had been associated with the development of lenticular opacity. This had begun between the fourth and sixth years, although the skin affection had been manifested between the fourth and sixth months. The cataract had commenced in stripes, but had quickly developed and had become complete in several days. This skin affection had been compared with vitiligo, keloid, and ichthyosis, but had had sufficient individual peculiarities to separate it from each of them. No good explanation had been given of the cause of the opacity, except, perhaps, that the chronic parenchymatous inflammation of the skin had been associated with an analogous condition of the lens.

Nieden† had described the case of a girl, aged twenty two years, who had developed cataract rapidly, the opacity having been preceded by a teleangiectatic swelling of the capillaries of the face. Referring to the well-known relation of diseases of the uveal tract to the development of cataract, and to the relation of atheroma to its production, he thought the dilated capillaries might have been an indication of a vascular disturbance within the cranial cavity which had been responsible for the passage of the lens into opacity.

IV. *TOXÆMIAS*.—Although, perhaps, not belonging strictly to the list which the author had discussed, it would seem proper, in closing, to refer to one or two forms of cataract which had developed, if not under the influence of, at least in association with, the action of certain drugs. Foremost among these were the observations which related to the development of opacity of the crystalline lens in connection with ergotism, or, as it was often called, the formation of raphanic cataract.

Thus Meier‡ described twenty-three cases of ergotism—fifteen women and eight men. Their ages had been between ten and sixty, the poisoning had lasted from six weeks to three months, and the chief symptoms had been cramps and convulsions. He attributed the disease either to the action of ergot on the ciliary nerves, or to the convulsive disorder. Numerous papers had appeared upon this subject, to which further reference was unnecessary, except to say that, for example, in those cases reported by Tepljaschin,§ twenty seven in number, occurring during an epidemic of ergotism, and the patients had been, for the most part, under thirty years of age, the development of the cataract had been ascribed rather to the convulsive disorder than to any distinct action of the poison itself. Hence it seemed proved that the lenticular opacity resulted from the violent, general convulsions and not directly from the ergot.

Among other toxic agents that were known to cause cataract was naphthalin. Experimentally, cataract had been produced with this drug by feeding it to rabbits, but it should be mentioned that, in addition to the lenticular opacity, there were general disturbances as well as changes in the retina and vitreous. Other drugs and toxic agents had in a vague way

* *Monatsh. f. Augenheilk.*, Jahrgang x, 1872, p. 351.

† *Wien. med. Wochenschr.*, Nr. 39, 1889.

‡ *Brit. Med. Jour.*, May 10, 1884, p. 899.

* *Graefe's Archiv f. Ophthalmologie*, 1858, vol. xiv, p. 157.

† *Cyrb. f. prakt. Augenheilk.*, December, 1887, p. 358.

‡ *Archiv f. Ophthalmologie*, 1862, viii, Abth. 2, 120-124.

§ *St. Petersburg. med. Wochenschr.*, 1889, Nr. 3.

been suggested as a possible cause of opacities in the crystalline lens, but it was likely that these relationships had existed in the minds of the patients rather than in reality, and, before they could be accepted, direct experimentation, especially upon the lower animals, would be required.

Naturally the possible relationship between cataract and general disease had often been discussed, but, as might be seen from the cases quoted, the conclusion reached by Becker,* that a connecting link between constitutional maladies and opacity of the crystalline lens had not been established, remained in a large measure unshaken. To quote again from this author, said Dr. de Schweinitz: "The influence of the constitutional condition of the organism expresses itself relative to the lens, either that another portion of both eyes first becomes diseased and the pathological changes brought about in the vitreous through this means lead to the formation of cataract, or that the lymph of the body experiences changes, through which, without the evident intervention of other ocular lesions, lenticular opacity develops." None the less, as pointed out in the beginning of the paper, systematic examination of cases of general disease, especially frequent investigation of the transparent media, might throw further light upon the subject, and was a research worthy of followers.

The evident influence of eye-strain and asthenopia in its widest sense, together with the changes which this produced in the ocular coats, particularly the chorioid, referred to by Galezowski, insisted upon by Schoen, and more recently elaborated by Risley, on the formation of cataract was well established. Possibly constitutional diseases permitted this influence to be more strongly felt, and thus indirectly aided in the development of lenticular opacities, or perhaps a more direct influence could be established. Be this as it might, further critical evidence was needed.

At the same meeting Dr. Edward Jackson read a paper in which he said that the possible causes of cataract might be considered under three heads—namely, senile degeneration, disease of the eye itself, and general disease impairing the nutrition of the crystalline lens by some influence exerted through the blood or through the nervous system.

The influence of senile change was obviously indicated by the occurrence of cataract chiefly after middle life. That such an influence existed, and was powerful, probably no one questioned; but the view that it was the sole cause, or anything more than a predisposing cause in a majority of cases, seemed to be negated by the clinical history of cataract. The changes of age, those which resulted from the lapse of time and the purely physiological use of an organ under physiological conditions, must have been in the main slowly and steadily progressive; at least, if they had been more evident at some times than others, they would never have become entirely stationary or in any case retrogressive.

The one fact, however, in the clinical history of so-called senile cataract that seemed firmly established by the studies that had heretofore been made of it, was that in the majority of patients the condition was not steadily progressive, but was marked by periods of rapid increase and periods of little or no change, or even, in certain conditions, by periods of diminution of opacity.

The author remembered well a case occurring some years ago in the service of Dr. Harlan at Wills Eye Hospital, where they had been inclined to think from the appearance of the opacity that probably it would become rapidly progressive. The patient received the opinion with perfect composure and apparent indifference, the cause of which became evident when

she informed them that she had been told the same thing six years before, and that there had been no perceptible change in her vision during that interval.

In a classical case reported in the *Royal London Ophthalmic Hospital Reports*, 1866, Bowman had seen the patient eighteen years before, and had made a drawing of the opacity which substantially represented its appearance after this long interval.

In a large proportion of the cases of advanced cataract that had come to us, the history as obtained from the patient showed one or more periods of a rapid increase of the cloud over the sight, with other periods in which there had been little or no change. In his experience it was quite the exception to find that the difficulty had increased steadily and continuously after a period of months or years. From this observation the obvious deduction appeared to be that, although senility might be a predisposing cause, the efficient determining cause of cataract must have been of quite a different character, at least for the great majority of cases.

Of the importance of local pathological conditions within the eyeball, particularly those of the nutritive coat, the chorioid, the importance of which had been strongly urged by Dr. S. D. Risley, he did not propose to speak. Their importance was certainly very great, but it seemed clear to him that general conditions of nutrition were also of importance in this connection. It might be claimed that general conditions acted by their influence on the chorioid. But even admitting this, such influence often did not become evident by any changes that could be detected in that membrane, but only by the resulting altered nutrition of the lens; and the changes in the chorioid, though they might exist, being secondary to the general departure from health, the practical thing to do was to fix our attention and address our remedies to that.

The literature of cataract as carefully reviewed by Dr. de Schweinitz showed a large number of attempts to connect the occurrence of lens opacity with particular general diseases, but with conclusions based upon very insufficient data. For instance, one writer reported a series of cases of cataract in which heart disease had been present, and upon the frequency of such a concurrence attempted to establish a connection. So many were the factors to be considered that probably no statistics of concurrence possible, up to the present time, or likely to be obtainable in the near future, would furnish a substantial basis for any valuable conclusion in this direction.

Again, very many reported cases, and this applied particularly to the striking ones that might be regarded as of great value, were vitiated by probable inaccuracy of diagnosis.

The difficulty of avoiding errors of this sort might be illustrated by a case reported by Dr. Ruschenberger, of Philadelphia, in the *American Journal of the Medical Sciences* for January, 1846. In this case, which had been one of acute pneumonia, he noted that "a cataract had formed in the right eye within thirty-six hours, and without any appearance of local inflammation. It had been ashy white, and vision totally extinct." The case, however, had proved fatal. At the autopsy it had been discovered that "what had been supposed to be a cataract had proved an effusion of lymph within the margin of the pupil slightly adherent to the iris. This lymph had formed a disc, covering the anterior face of the lens, which had been transparent."

Indeed, so imperfect had been the observation of cases and the sifting of evidence bearing upon this subject, that, with regard to the share of particular diseases in the causation of cataract, it was only perhaps with reference to diabetes and ergotism that the testimony could be regarded as sufficient to establish a connection.

* *Loc. cit.*

Of course, so many inconclusive attempts to establish such a connection between cataract and disease were of value as negative evidence that no such connection existed. They did not, however, militate against the view that certain vices of general nutrition which might arise in many specific diseases were an important factor in the production of cataract.

Organic heart disease, gout, and arterial sclerosis as distinct diseases might have little connection with cataract, yet in their course there might arise the physical conditions which would in particular patients determine the opacification of the lens. To determine whether that was or was not the case would only be possible by the careful and prolonged study of individual cases, the opportunity for which was rarely accorded to the ophthalmic surgeon.

Several years ago, while in general practice, he had had an opportunity of watching a case of mitral disease, during several months of cardiac insufficiency, along with serious gastric disturbances. During this period there had been rather rapid impairment of vision through the development of lens opacity, presenting the ordinary clinical characters of cortical senile cataract. Finally, compensatory hypertrophy re-establishing the balance of the circulation, the digestive disorders had been relieved and a better state of health had been brought about. Vision had slightly improved, and for two years the cataract had remained quite stationary. After that, he was informed, the patient's impairment of vision had been very slightly progressive for several years. But prior to her death, as her general condition had become impaired, the cataract had again grown rapidly worse.

Though cases of this kind might occur frequently in such patients consulting one or more ophthalmic surgeons in the period of comparative health, they would be quite unable to establish any connection between the lens opacity and the general disease. Again, the medical practitioner who did not employ the ophthalmoscope, or who had not been sufficiently familiar with its use to exclude changes in the chorioid or vitreous from any share in the progressive impairment of vision, would be quite unable to give convincing evidence upon the subject.

It would seem that here, as in so many other cases, scientific knowledge was only to be advanced by the working together of the specialist and the general practitioner. It might be supposed that this could be accomplished in the general hospitals that had upon their staffs skilled ophthalmologists. But such a study to be of any considerable value must extend over a long period—many months or years; and hospital patients were proverbially inconstant, so that to follow them for the necessary length of time was generally quite impossible. The conditions of private practice, where the family physician remained the trusted medical adviser for years, were those most favorable to such a study, and under its conditions it ought to be more frequently undertaken.

This was especially the case, since the good of the patient urgently demanded exact and skillful treatment in all cases of commencing senile cataract. If we were to-day able to do less than we desired to influence the general conditions, we had some positive knowledge and ability to cope with the local conditions which attended or caused the development of cataract, and the interest of the patient demanded the application of our knowledge in every case. Nor was the consultation of the ophthalmologist justified only when a commencing cataract was feared. There was no condition leading to impairment of vision in the course of acute or chronic general disease in persons over fifty years of age that did not demand prompt and accurate diagnosis and appropriate modification of the management of the case.

In early life we did have failure of accommodation, and perhaps some other conditions leading temporarily to impaired vision during or after acute disease, which might go on to recovery without medical interference; but in persons past fifty years this did not occur; and, whether the impairment of vision had been from cataract or from some other cause, there was equal need of a full understanding of the case.

Probably the mere calling of certain forms of cataract "senile" was partly responsible for their neglect. Cataract was not due to age in the sense that arsenical poisoning is due to arsenic. It ought to be clearly understood that cataract was senile in the same sense as were fibroid kidney or arterial atheroma, and was quite as worthy of careful diagnosis and intelligent treatment. The interests of the patient demanded professional supervision; the benefit he might derive from it was as definite and unmistakable as in other diseases. And this supervision should include general as well as ocular conditions, and when it did we began to accumulate data upon which the medical treatment of cataract would be a rational procedure.

What the general conditions were that specially favored the formation of cataract, in the present condition of our ignorance, it was scarcely worth while to speculate. Perhaps the most plausible hypothesis was the one urged by the late Dr. Isaac Hays, that the lens opacity was due to a deficiency of water. This had been offered as the explanation of diabetic cataract, and that had been produced experimentally by injections of sugar and various salts beneath the skin of the lower animals. It was also favored by the evident shrinking of the lens when cataract was produced by feeding the animal with naphthalin and the subsequent clearing of such a lens when placed in water.

A hypothesis more nearly in accord with the present views of general pathology, and one probably worth bearing in mind, would be that of the formation and circulation within the body of substances which, reaching the lens by the normal course of the nutritive fluids, acted upon it unfavorably.

Briefly, the points which the author desired to emphasize by this paper were:

In general, senile change did not produce cataract, but predisposed to it.

The efficient determining causes of cataract were both ocular and general.

The general causes of cataract were not particular diseases as diseases were usually described and classified, so much as physical conditions liable to arise in the course of various diseases.

The nature, prevention, and removal of these general conditions that underlie the development of cataract offered promising fields for scientific study.

The professional supervision necessary for the making of such a study was demanded by the interests of the individual patient.

Speaking more specifically, the study of a cataract case should include the careful testing of vision at regular intervals.

The further examination of the eye to determine in how far impairment of vision was due to cataract, and in how far it was due to other causes.

The careful watching of the patient for other symptoms of impaired general health, especially for faults in the circulation, digestion, and assimilative metabolism.

Particularly at the first appearance of cataract, and at seasons of its rapid increase, would such a study of the case be of importance.

The Medical Service on Immigrant Vessels.—The American Public Health Association's committee on sanitary and

medical service on board emigrant ships presented, by the chairman, Medical Director Albert L. Gihon, of the navy, the following report at the recent annual meeting in Chicago:

Your committee beg to report the following concise statement of their views as to the organization of such a sanitary and medical service on board vessels engaged in bringing immigrant passengers to the United States as the experience and intelligence of this age make a necessity among civilized and enlightened nations. They are of opinion and advise:

First. As to the location and dimensions of the quarters for emigrant passengers, the number of berths in each, and the provisions for their ventilation and cleansing:

That the preferable location for such quarters is abaft the midship section of the vessel; that single males' quarters shall be distinct from those occupied by women and children, and that if any are forward the midship section it shall be those for single men.

That there shall never be more than two decks (properly there should be only one) occupied by emigrant passengers' berths, with sixteen feet of superficial space for each adult on the upper berth deck and twenty feet of such space on the lower berth deck, with not more than two tiers of berths on each deck, the bottom of the lower tier being not less than eighteen inches above the deck, with not less than thirty inches between the two tiers and between the upper tier and the ceiling of the compartment to allow the occupants of the berths to sit upright.

That no solid partitions or bulkheads shall be placed in any stowage compartment to obstruct light and air.

That the framework of the berths shall be of iron easily removable, that the compartment may be completely emptied and thoroughly cleaned after each passage.

That a steam ventilating apparatus by aspiration shall be introduced into all emigrant vessels; and

That all compartments occupied by passengers and crew shall be lighted by the incandescent electric light by night and day.

Second. As to the location and dimensions of hospitals on board such vessels and the number of sick-berths for which provision should be made:

That the hospitals, or "sick-bays," on board emigrant passenger vessels shall be at the extreme after part of the upper deck, thoroughly lighted and ventilated, with eighteen feet of superficial space for every fifty passengers and not less than four sick-berths or hospital cots for every hundred passengers.

Third. As to the number of medical officers proper for the maximum of emigrant passengers any vessel should be permitted to carry, being the maximum number able to be berthed with regard to health, cleanliness, and comfort:

That there should be one duly qualified medical officer for every two hundred and fifty passengers.

Fourth. As to the professional records which the senior medical officer of every such vessel should be required to keep, and his responsibility to the health authorities of the port of arrival for the truthful and professionally accurate statements of such records:

That the senior medical officer of every such vessel shall be required to keep (1) a *list of sick*, recording in a bound book, in the order of their admission, and on a single line, the name, sex, age, birthplace, date of admission to treatment, date of death or discharge from treatment, disease, and such remarks as may be necessary to enable the inspecting medical officer at the port of arrival to have a clear and complete understanding of the case, and (2) a *medical journal*, in which each medical officer, when there are more than one, shall record the medical history, including symptoms and treatment of every case, to be

approved and signed by the senior medical officer at the close of the day's record; and such list of sick and medical journal shall be submitted to the health authorities of the port of arrival, and the accuracy of the statements in such records shall be established by oath and penalties for perjury shall be provided.

Fifth. As to the location and capacity of latrines for emigrant passengers:

That the latrines—shallow troughs with a continuous flow of salt water—shall be on the upper deck under shelter with two watercloset seats for every fifty passengers, with a proportionate number for women and children, in a separate locality near their own quarters inaccessible to men.

Sixth. As to the number of attendants provided for such passengers and their duties as to policing and cleansing emigrants' quarters:

That there shall be not less than one berth-deck attendant for every fifty passengers, female attendants in the same proportion being exclusively assigned to the quarters for women and children.

That the berth decks shall be thoroughly cleansed every morning by the attendants, never wetted in rainy or damp weather, when they shall be scraped, swept, and freshly sanded, and in pleasant weather washed with hot water and quickly dried, the passengers being sent on deck during the operation.

That the berth-deck attendants shall be on duty night and day in rotation by regular sea watches, and the attendants on watch required to remove the dejecta of seasick passengers without delay; and

That benches and mess tables shall be provided and the passengers food distributed by the berth-deck attendants, who shall take away all unused food and carry the dishes to the pantry.

Seventh. As to additional provisions for the personal health, cleanliness, and comfort of emigrant passengers:

That wash rooms under cover with basins supplied with running water shall be provided on the upper deck, those for men to be separate from those intended for women and children.

That fresh water for drinking purposes shall be provided in each compartment; and

That inexpensive mattresses, pillows—these to be serviceable as life preservers—and blankets shall be provided for emigrant passengers, the mattresses to be destroyed after each passage, and the pillows and blankets to be steamed and washed before being again used.

While other suggestions as to sanitary provisions might appropriately be made, your committee feel that those indicated are of such urgent necessity that they should be insisted upon and put into effect without delay.

All of which is respectfully submitted:

ALBERT L. GIHON,

Medical Director, U. S. Navy, Chairman.

FREDERICK MONTIZAMBERT, M.D., F.R.C.S., D.C.L.,
Supt. Quarantine Station, Grosse Ile, Quebec.

WALTER WYMAN,

[Signed.] *Supervising Surgeon General, U. S. M.-H. S.*

S. R. OLLIPHANT, M. D.,

President of the State Board of Health of Louisiana.

WILLIAM T. JENKINS, M. D.,

Health Officer of the Port of New York.

The Effects of Tight Lacing.—The *American Woman's Illustrated World*, says the *Sun*, prints the result of an interesting experiment made by a dozen young women under the

direction of Dr. Sargent to determine the influence of tight clothing upon the action of the heart. The test was the running of four hundred and forty yards in loose gymnasium garments, and covering the same distance with the corsets on. The running time was two minutes thirty seconds for each trial, and in order that there should be no cardiac excitement or depression following the test, the second trial was made the next day. Before beginning the running the average heart impulse was eighty-four beats to the minute. After running the above-named distance the heart impulse was one hundred and fifty-two beats to the minute, the average natural waist girth being twenty-five inches. The next day corsets were worn during the exercise, and the average girth of waist was reduced to twenty-four inches. The same distance was run in the same time by all, and immediately afterward the average heart impulse was found to be one hundred and sixty-eight beats per minute. Dr. Sargent says that he never feels justified in advising an athlete whose heart impulse is one hundred and sixty beats per minute after a little exercise to enter a running or rowing race, and from this may be inferred the physiological loss entailed upon the system in women who force this important organ to labor under the disadvantage of a tight corset.

The late Dr. D. J. Macgowan, of China.—The *China Medical Missionary Journal* for September contains the following memorial article, written by Dr. William Muirhead:

We are called to record the demise of our venerable friend Dr. Macgowan. It took place on the 20th of July after a few days' illness, and in the seventy-ninth year of his age. He was long and well known in China, and highly esteemed by a large circle of friends. His death, so sudden and unexpected, in the very midst of his usually active life, and in the prospect of still further useful service, has left a wide gap, which it is painful on the part of many to realize. However, he had arrived at a good old age, and we can only take a cursory view of the man, his manner of life, his Christian character, and the work he has done in his day and generation.

Necessarily the details to hand are few, and we know no one who could furnish particulars of many things in the past history of our friend, yet these may not be required to supply the general outline we contemplate, or add to the high estimate we have formed of the subject of our sketch.

Dr. Macgowan was born in Fall River, Mass., and came to Ningpo as a medical missionary in connection with the Baptist Missionary Union in the year 1843. This was at the first opening of the country, and though we have no account before us of his services in these early days, we may be assured he was eminently useful, like others in the same capacity, ministering to the wants of the sick and diseased in the neighborhood. The valuable *Chinese Repository* doubtless contains particulars of his work, and information of various kinds from his pen, which he was always so ready to furnish, but we need not refer to this at present.

On his return to the United States, in the time of the civil war, he served as a surgeon in the Northern armies, and made himself much respected in Washington. He came back to China in 1865 and took up his quarters in Shanghai. He began medical practice among the shipping, which was found to be a difficult and precarious thing for a man of his age, but he persevered in it as long as he possibly could. He had married a most excellent and accomplished lady, who was an English governess in Calcutta, and was a great comfort and help to him in his missionary life and subsequently. They had two children, but one died very young, while the other is the wife of Sir Chaloner Alabaster, now in England. About the year 1878 Mrs. Macgowan died in Shanghai, which was a lifelong sorrow

to our departed friend. It rendered him all the more unfit to carry on his work here single-handed and alone. Happily, Sir Robert Hart provided a situation for him in the customs service at Wenchow, which was a benefaction of very great value for a number of years.

While our friend was thus engaged he had leisure, as he had talent, disposition, and learning, to prosecute a variety of studies, both in Chinese and English. He was exceedingly given to this kind of thing, ever inquiring into folklore and scientific themes, familiar and out of the way, and never failing to communicate the result of his researches to public papers at home and abroad. The records of different societies, especially the Royal Asiatic Society of this place, abound with articles of his contribution, and the *North China Daily News* and the *Shanghai Mercury** were favored in no small respect in this way.

During the last year, when freed from his official-work, he undertook a journey to Japan and the Loo-choo Islands. There he came in contact with the high authorities, and while adding to his information on various subjects he had the opportunity of giving them important advice on education and civil government. On returning to Shanghai, he prepared at once to go North, as he had done previously to Manchuria and Siberia, where he was engaged on some interesting investigations. On his last journey he regaled his friends of the Oriental Society of Peking with the result of his inquiries in Japan on several points of ancient history between the two countries.

On the 15th of July he came back to Shanghai, and called the same afternoon on the writer with a long paper he had composed on the Geary Exclusion Act. He was deeply concerned about this matter, and his object was to get his paper translated into Chinese, for publication in the native newspapers here in the first place, after which he intended to proceed to Washington to present it to the President of the United States. He was promised letters by Li Hung-chang to the Chinese Minister in the States, with whom he could negotiate the subject. When he had carried this matter through, his purpose was to proceed to England and spend the remainder of his days in the family of his beloved daughter. The hand of Divine Providence, however, was upon him, and after a few days' illness he died, it appears, from sheer exhaustion, and was buried in the beautiful cemetery of our foreign settlement, in the presence of a large number of friends and acquaintances.

A word or two in regard to the Christian life and character of the deceased. Though long separated from missionary work, in so far as actual engagement in it was concerned, there was no cessation of his interest in it, or in the maintenance of his religious profession. He was in this respect faithful to the end, and it was pleasant to observe this at his advanced period of life, and in the midst of other things that he was following out. The writer can testify to incidents of this kind that are gratifying to think of, and which led him and others all the more to esteem and respect him. As to his general manner and appearance, he was rather small in stature, and his long white beard made him look most venerable, while at the same time he was most genial and youthful in his intercourse with friends, his remarks often sparkling with witticisms of an amusing and interesting kind. He was well informed in current events and discoveries, and ever ready for conversation about them, yet underlying the whole there was a supreme interest on his part in the power and progress of Christian truth. Attached to his own line of things as a Baptist, there was no narrowness of mind in relation to other views and parties, and

* Dr. Macgowan was an occasional writer for our *Journal* and but shortly before his death promised us a series of articles for it.—Ed. CHINA MED. MIS. JOUR.

withal we cherish his memory and lament his loss, while the blessed hope remains that all is well, and having served the Master in his life on earth, he has entered on a gracious reward above.

Einhorn's Gastrodiaphane.—At a recent meeting of the College of Physicians of Philadelphia Dr. S. Solis-Cohen said:

I wish to call the attention of the fellows of the college to the gastrodiaphane devised by Dr. Max Einhorn, of New York, which consists of a small electric lamp fastened to a flexible stomach tube with cords connecting it with a source of electric power and with a handle to make and break the current. Four storage cells having an electromotive force of eight volts, or an equivalent number (six) of freshly charged bichromate primary cells, will operate it. The patient having swallowed two glasses (one pint) of cold water, the end of the tube is lubricated with glycerin, and the instrument is then readily swallowed by a person accustomed to swallow the stomach tube and sometimes by those not accustomed to its use. The examination being made in a dark room, when the current is turned on, the contour and area of the stomach appear very plainly as a luminous red zone on the abdominal wall. The advantage of this method is in determining the presence or absence of thickening in the anterior wall of the stomach, and in determining the exact position of the stomach and the outline of the lesser curvature. It is exceedingly useful in diagnosing between dilatation of the stomach and the condition termed gastroptosis or sinking of the stomach. I have used the instrument in many normal-sized stomachs and in half a dozen cases in which diagnosis was in doubt. In one case it confirmed the diagnosis of dilatation where the ordinary methods of percussion were unsatisfactory, thus proving the presence of pyloric obstruction, although the cause of the obstruction was so situated as not to be manifest. In another case, with symptoms of carcinoma and absence of free HCl, but in which a tumor could not be felt, the thickening of the anterior wall appeared very clearly on the abdomen as a dark patch in the midst of the zone of transillumination. In another case in which there was a question whether or not a tumor of the abdominal wall communicated with or was attached to the stomach we were able to demonstrate that there was no direct connection.

The method has a limited usefulness in diagnosis, its advantage being that it is readily applied and that within its limitations the information it gives is easily interpreted.

Dr. D. D. Stewart said: I have used gastrodiaphany for about a year in quite a large number of cases. I have found that the introduction of but one or two glasses of water is not sufficient to render the whole stomach translucent. It permits only the lower part of the stomach—that of the greater curvature—to be seen. Heryng and Reichmann advise the introduction of 1,000 to 2,000 c. c. of water. In this way the lesser curvature is also outlined. At times you can see a portion of the colon illuminated, the recti muscles, the hypogastric veins, and also the edge of the liver and a portion of the spleen. The great objection is the difficulty of getting the patient to swallow the diaphane. One has first to become used to the tube. For gastrodiaphany to be of any diagnostic use it is necessary to introduce so much water that it causes great discomfort to the patient, and often vomiting, necessitating prompt withdrawal of the instrument.

Dr. Frank Woodbury said: This instrument was first presented to the German Practitioners' Society of New York five or six years ago and its use demonstrated. It has not made very great progress since then. If we have to administer a couple of quarts of water before making the examination the diagnosis of

dilatation is already made. Where we suspect a growth on the anterior wall of the stomach it might be advantageous to use this instrument. I would suggest instead of glycerin as a lubricant the use of cacao butter, which is a bland and entirely unobjectionable material.

Dr. Stewart said: With reference to lubricants for stomach tubes I would say that I use nothing save water. Glycerin is unnecessary and cacao butter is not to be thought of.

Dr. Solis-Cohen said: Einhorn maintains, and I agree, that one advantage of his instrument and method over Heryng and Reichmann's lies in the small quantity of water necessary. Einhorn has also the priority in the matter, if that is of any consequence. Glycerin is used to lubricate the glass only, and I find it useful and without drawback of any kind.

Cleft Palate in Lions born in Captivity.—In a paper on Cleft of the Hard and Soft Palates, read at a recent meeting of the Philadelphia Academy of Surgery, Dr. J. Ewing Mears stated that observations made in the Dublin Zoological Gardens some years since had quite positively determined that the condition might be due to a want of proper nutrition in the mother during the period of gestation. Up to the time referred to it had been impossible for the authorities in charge of the garden to rear the young of the lion, on account of the invariable occurrence of cleft of the palate, which prevented the taking of nourishment to maintain life. The plan of giving to the mother during pregnancy ground bone and food containing the inorganic elements of bone had been crowned with success, and within recent years a large revenue had been derived from the sale, to all parts of the world, of lions raised in this garden. The lion whelps in the Zoological Gardens of Philadelphia had suffered in the same manner, and he had suggested to the superintendent to adopt the plan practiced in the Dublin garden. During the conversation the superintendent had stated an interesting fact: that the whelps of lions in traveling menageries did not suffer like those born of mothers confined in gardens, and he was disposed to account for the fact by the rough life led by them, as well as by the variety in the food, consisting of bones as well as of meat—sometimes more of the former than of the latter.

Salipyrine in the Treatment of Uterine Hæmorrhage.—The *Revue générale de médecine, de chirurgie et d'obstétrique* for November 15th gives a summary of an article by Dr. Kayser, published in the *Deutsche medicinische Wochenschrift*, who gives his experience in the treatment of a number of cases of uterine hæmorrhage with salipyrine. He has employed the drug in sixteen cases, but in three of them the hæmorrhage was too severe to allow of a sufficiently prolonged trial of it. In all but one of the thirteen other cases the use of salipyrine reduced the hæmorrhage, no matter what its cause was, excluding cancer and abortion. In some of the patients the hæmostatic effect lasted for several days after the use of the medicine had been suspended. It had no effect on pain. It was especially efficacious in cases of menorrhagia coming on at the time of the menopause. It was well borne in every case, but with two or three of the patients it caused a little ringing in the ears. It was given in powder or in the form of compressed tablets, in doses of fifteen grains three times a day. As nearly as possible its administration should be begun on the day before a menstrual period is expected.

The Pious Apothecaries of Antwerp.—The *Deutsche medizinische Zeitung* condenses from a Scandinavian medical journal the statement that three out of the four apothecaries of Antwerp have recently resolved to close their shops at two o'clock in the afternoon on Sunday.

Original Communications.

THE DIAZO REACTION OF EHRlich.*

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SINCE Ehrlich† first introduced his "new urinary test," the diazo reaction, into clinical medicine it has been the object of much interest, for it is simple and easily carried out and of great diagnostic value. Many objections were at first offered, but these were soon proved to depend upon errors in the performance of the test.

Year by year the reaction has gained new adherents, so that it is now considered a very efficient diagnostic measure in most of the clinics of Germany and of many other countries.

In recent years new objections have been raised, and it is the main object of this paper to show that these are unwarranted.

The diazo reaction depends upon the principle that if sulphanilic acid (amidosulphobenzol) is acted on by HNO_2 , diazosulphobenzol is formed, which unites with certain aromatic substances (of the urine) to form aniline colors.

To obtain diazosulphobenzol in a fresh condition, sulphanilic acid is kept in solution with hydrochloric acid; to this sodium nitrite is added, whereupon HNO_2 is liberated and diazosulphobenzol is formed.

The reaction is carried out in the following manner:

Two solutions are prepared:

(a) Two grammes of sulphanilic acid; fifty cubic centimetres of hydrochloric acid; one thousand cubic centimetres of distilled water.

(b) Five-tenth-per-cent. solution of nitrite of sodium.

In order to perform the reaction, fifty parts of a and one part of b are mixed, and equal parts of this reagent and of urine placed in a test tube and saturated with ammonia. In those cases in which the reaction is positive the solution assumes a carmine-red color, which, on shaking, must also be visible in the foam. If the test tube is allowed to stand twenty-four hours, a greenish precipitate is found.

Ehrlich‡ arrived at the following conclusions:

1. The reaction is most commonly found in typhoid fever from the middle of the first week; and that whenever the reaction is missing the diagnosis appears doubtful.

2. Cases of typhoid fever in which the reaction is slight and only found for a short time are usually very mild.

3. In phthisis pulmonalis the reaction is a grave prognostic sign. The reaction is sometimes, but rarely, found in measles, miliary tuberculosis, pyæmia, scarlet fever, and erysipelas.

4. In all diseases unaccompanied by fever—such as

chlorosis, hydræmia, diabetes, brain, spinal, liver, and kidney diseases—the reaction is never obtained.

These postulates of Ehrlich's were verified by his pupils and others.

Fisher* obtained the reaction constantly in measles and very frequently in typhus fever. This proves that the substance causing the reaction can not bear any relation to the chemical changes going on in the typhoid intestine, as such are entirely absent in these diseases.

Brecht† corroborated the statements of Ehrlich. He found the reaction in seventeen cases of typhoid fever, two cases of measles, and rarely in pneumonia. The appearance of the reaction in pneumonia is to be regarded as of grave significance.

In other non-febrile diseases the reaction could not be obtained.

Löwinson,‡ after making numerous investigations, especially in pulmonary tuberculosis, came to the following conclusions, which entirely accord with those of Ehrlich—namely:

The appearance of the reaction in tuberculosis is a *signum mali ominis*. It is not dependent upon the fever. Marked reactions lasting for a long time (one to two months) are only found in tuberculosis, and especially in the most rapid forms.

Cnopf§ and Grundies|| arrived at the same general conclusions concerning tuberculosis.

Escherich,^ See, & Dorendorff‡ also corroborated Ehrlich's investigations.

Goldschmidt‡ found the reaction constantly in miliary tuberculosis and typhoid fever, and remarks that the reaction is of great value in the diagnosis between typhoid fever and gastro-intestinal catarrhs running their course with fever. He did not find the reaction in influenza.

Spiedhoff‡ made experiments to discover the cause of the red diazo reaction, and found that neither diacetic acid nor æthyldiaceticæther give the true reaction. In order to obtain a reaction with these substances, stronger solutions (NaNO_2) are required. He therefore warns against the use of too strong reagents in performing the ordinary diazo reaction. He considers the reaction of great prognostic and diagnostic importance in tuberculosis and typhoid

* Fisher. *Die Diazoreaction bei Pneumonie, Morbillen und Typhus exanthemat.* Dissert., Berlin, 1883.

† Brecht. *Die diagnostische Bedeutung der Diazoreaction.* Dissert., 1883.

‡ Löwinson. *Ueber die Ehrlich'sche Diazoreaction, in besonders bei Lungenphthisie.* Dissert., 1883.

§ Cnopf. *Diazoreaction und Lungenphthisie.* Dissert., 1887.

|| Grundies. *Mittheilungen über Diazoreact. bei Phthise pulm.* *Zeitschrift für klinische Med.*, 1884.

^ Escherich. *Zur diagnostische Bedeutung der Diazoreaction.* *Deut. med. Woch.*, 1883, No. 48.

& See. *De la phthisie bacillaire des hommes*, Paris, 1884, pp. 327-330.

‡ Dorendorff. *Die diagnostische und prognost. Bedeutung der Diazoreaction.* Dissert., 1884.

‡ Goldschmidt. *Ueber die diagnost. Werth der Diazoreaction.* *Münch. med. Woch.*, 1886, No. 85.

‡ Spiedhoff. *Ueber Ehrlich's Diazoreaction.* Dissert., 1884.

* Read before the Clinical Society of Maryland, November 17, 1893.

† Ehrlich. *Charité Annalen*, viii. Jahrgang, und Ueber eine neue Harnprobe, *Zeitschrift für klinische Medizin*, Bd. v, 1882.

‡ Ehrlich. *Loc. cit.*

fever. He states that true reactions show the green precipitate.

Loewe* finds the reaction to be one of the most constant of the signs of typhoid fever, and absence of the reaction he believes is sufficient to make the diagnosis doubtful. Of thirty-one cases of typhoid fever, he missed the reaction only in four.

Georgiewsky† admits the high prognostic value of the reaction.

Brewing,‡ who made twenty-five hundred examinations, finds the reaction of great diagnostic and prognostic value in typhoid fever, phthisis, puerperal affections, and concealed septic processes.

Roessingh* and Piering|| likewise confirmed Ehrlich's statements.

Rüttemeyer,^ after a series of exact experiments, came to the following conclusions:

1. The diazo reaction is of great diagnostic value in typhoid fever; next to the enlargement of the spleen and roseola, it is one of the most constant and earliest signs.

2. The diagnosis of typhoid fever gains much certainty if the diazo reaction be present; if, on the contrary, the reaction is absent during the first and second weeks of the illness, the disease is not typhoid, or only a very light form.

3. Gastro-intestinal catarrhs accompanied by fever never give the reaction.

4. The reaction bears no relation whatever to the height of the fever and is not influenced by various medicinal or therapeutic measures (baths, etc.). Morning urine and evening urine give reactions of equal intensity.

5. If the reaction terminates in the second or third weeks of the disease an early fall of the fever and a mild course of the disease may be expected, but long continuance of the reaction indicates a severe and lengthy course of the disease.

6. Marked and continuous reactions do not, however, in any way indicate whether the disease will terminate fatally or favorably.

7. In relapses we almost always get a renewed reaction if the reaction has disappeared before the relapse occurs.

Simon◇ considers the appearance of the foam as characteristic of the reaction and finds the reaction only in typhoid fever and tuberculosis. Of thirty cases of typhoid fever, the reaction was present in twenty-six.

C. Gerhardt‡ states that in his clinic during five years the reaction was absent in but one certain case of typhoid

fever; on the other hand, he has found the reaction present in non-febrile cases of typhoid fever, numerous cases of which were at the Charité in the spring of 1891.

Von Norden's* experience at Gerhardt's clinic coincides with the statements of Ehrlich. The rise of temperature as such has no marked influence on the appearance of the reaction, for even severe cases of phthisis, running their course without fever, show marked reactions for weeks. In phthisis a continuous reaction denotes special severity of the case and makes the prognosis unfavorable. In typhoid fever the reaction is so constantly present at the beginning and during the course of the disease that we must be doubtful of our diagnosis of typhoid when the reaction is absent.

It is not unlikely that in those rare cases of gastro-intestinal catarrh in which certain authors detected the reaction the disease was really non-febrile typhoid fever.

Pape† made observations regarding the diagnostic value of the diazo reaction in surgical tuberculous affections, and found that after every operation the reaction which had previously been present disappeared—in some immediately after the operation, usually within three to five days.

Worthing‡ found the reaction in only a few diseases and arrives at conclusions fully in accord with those of Ehrlich. He points to the importance of relying only on the red color in the foam.

Notwithstanding the many observations showing the diagnostic and prognostic value of the diazo reaction, certain writers make statements quite contrary to those of Ehrlich.

Penzoldt* and Petri|| were the first to attack Ehrlich's conclusions. They deny that any marked difference existed in regard to the reaction between healthy persons and patients, even those having fever. It is not necessary to prove here the error into which these writers had fallen.

Ehrlich himself showed that these authors used solutions of sodium nitrite much too concentrated. Concentrated solutions produce a pseudo-reaction, which may even be so marked as to cover a true reaction. The reaction should always be made with weak solutions of sodium nitrite (one half per cent.).

It is remarkable, however, that, though these objections have been so thoroughly answered by Ehrlich and the reaction has been proved to be of great value, von Jaksch,^ in the new edition of his *Clinical Diagnosis*, "disclaims for the test any clinical importance whatever, and especially enjoins the necessity of avoiding inferences based upon the appearance of the reaction."

He believes that the color when obtained is always due to the presence of acetone. He bases his conclusions on

* Von Norden. *Lehrbuch der Pathologie des Stoffwechsels*, S. 217.

† Pape. *Ueber die diagnostische Verwendbarkeit der Diazoreaction bei chirurgischen Affectionen*. Dissert., 1892.

‡ Warthin. Additional Notes on the Diazo Reaction. *Medical News*, May 27, 1893.

* Penzoldt. Ueber den diagnostischen Werth der Diazoreaction. *Berl. klinische Wochenschrift*, 1883, 14 and 49.

|| Petri. *Zeitschrift für klinische Medizin*, Bd. vi, S. 742.

^ Von Jaksch. *Klinische Diagnostik*. 3te Auflage, S. 400. English translation, 1893, p. 323.

* Loewe. *Ueber Auftreten der rothen Diazoreaction Ehrlich's*. Dissert., 1888.

† Georgiewsky. Die neue Harnprobe Ehrlich's. *Deut. med. Wochenschrift*, 1883, No. 45.

‡ Brewing. *Zeitschrift für klin. Medizin*, Bd. x, p. 561.

* Roessingh. Die Ehrlich'sche Reaction. *Deutsche med. Wochenschrift*, 1883, No. 33.

|| Piering. Ueber die Ehrlich Harnprobe. *Prager Zeitschrift für Heilkunde*, No. 1, 1885.

^ Rüttemeyer. Zur klinische Bedeutung der Diazoreaction. *Correspondenzblatt für Schweiz. Aerzte*. Jahrg. xx (1890).

◇ Simon. *Johns Hopkins Hospital Bulletin*, November, 1890.

‡ C. Gerhardt. Ueber fieberlos. verlauf. Darmtyphus. *Charité Annalen*, xvi, 213, 1891.

the old Penzoldt and Petri statements and on a discussion before a medical society* without bringing forward any personal investigations on this subject. His conclusions can not be accepted, for—

1. Von Jaksch does not perform the reaction correctly. After adding sulphuric acid and sodium nitrite to the urine, he does not saturate with ammonia.

2. Because he states that Ehrlich recommends the addition of five to six volumes of absolute alcohol to the fluid to be tested, and then drop by drop the reagent. Ehrlich recommends this procedure only for his bile test, not for this urinary test.

3. It is impossible to demonstrate the presence of acetone by means of this reaction, performed according to the method of Ehrlich, as I have already shown in the first part of this paper. I have frequently convinced myself of this fact.

Of still less value is the article of Monson and Oertel,† who endeavor to identify the substance producing the reaction as diacetic acid and to show that the reaction is the same as that obtained by means of Gerhardt's iron test. If Monson and Oertel had read the experiments of Spiedhoff,‡ which were made under Ehrlich's direction, they would have learned that Ehrlich long ago pointed to the fact that diacetic acid and ethyl diacetate gave a reaction with the diazo reagent; that, however, a stronger solution of the reagent was needed (NaNO_2), and that the red color was heightened with ammonia or even caustic potash. More characteristic, however, is its relation to mineral acids, for, while small quantities turn the red color into yellow, large quantities change the yellow into a violet.

Warthin* has also proved that the substance occasioning the reaction must be quite different from diacetic acid.

In answer to the statements of authors, such as Edwards,|| who find the reaction accompanying all forms of diseases with or without fever, we assert that the reaction has been wrongly performed by these writers.

1. Very weak reagents (one half per cent. NaNO_2) must be used.

2. The alcohol test is not to be employed.

3. A positive reaction is only one in which the red reaction is present in the foam.

My own observations with the diazo reagent includes over three thousand reactions.

Twenty-one cases of typhoid fever were examined; the reaction was absent in but one case. I subjoin a synopsis of the typhoid-fever cases in which the reaction was used:

CASE I.—First examination was made on the fifth day of the disease: reaction was present daily until the twenty-second day. The case ended in recovery.

CASE II.—First examination on the fourth day: reaction present on the fifth day and continued until the twenty-sixth day.

CASE III.—First examination on the fifth day: reaction present and continued until the twentieth day.

CASE IV.—First examination on the eighth day: reaction present until the nineteenth day.

CASE V.—Only two examinations were made: reaction present on the tenth and twelfth days.

CASE VI.—First examination on the sixth day: although daily examinations were made, the reaction was not present until the eleventh day; it continued from then on until the fifteenth day. This was an extremely mild case.

CASE VII.—Only one examination made: reaction present on the eleventh day of the disease.

CASE VIII.—First examination on the fifth day: reaction present until the eighteenth day.

CASE IX.—First examination on the third day: reaction first present on the fifth day and continued until the fifteenth day.

CASE X.—First examination on the sixth day: reaction present from then on daily until the nineteenth day.

CASE XI.—First examination fifth day: reaction present and continued till the twelfth day, on which the patient died.

CASE XII.—First examination second day: the reaction was found on the fourth day and continued until the nineteenth.

CASE XIII.—First examination on the eighth day: the reaction was present, and continued until the fourteenth day.

CASE XIV.—First examination third day of the disease: reaction found on the fourth day and continued until the twenty-fourth day.

CASE XV.—First examination on the fifth day: reaction then present and continued until the twentieth day.

CASE XVI.—First examination fifth day of the disease: reaction present on the seventh day and continued until the twelfth day.

CASE XVII.—Only one examination made: reaction present on the seventh day of the disease.

CASE XVIII.—First examination eighth day of the disease: reaction not present; repeated examinations were made daily for ten days. The case was exceedingly mild, with a temperature never above 102.5°F .

CASE XIX.—First examination fifth day of the disease: reaction first present on the seventh day and continued daily until the twenty-second day.

Case.	Day of first examination.	Day of first appearance of reaction.	Day of last appearance of reaction.	Remarks.
1	5th day of disease.	5th	22d	Twelve days also reaction; only two examinations made.
2	4th " "	5th	26th	
3	5th " "	5th	20th	
4	8th " "	8th	19th	
5	10th " "	10th	....
6	6th " "	11th	15th	Only one reaction made.
7	11th " "	11th	....
8	5th " "	5th	18th	
9	3d " "	5th	15th	
10	6th " "	6th	19th	
11	5th " "	5th	12th	Only one reaction made.
12	2d " "	4th	19th	
13	8th " "	8th	14th	
14	3d " "	4th	24th	
15	5th " "	5th	20th	
16	5th " "	7th	12th	
17	7th " "	7th	....
18	8th " "	...	....
19	5th " "	7th	22d	
20	4th " "	4th	14th	
21	4th " "	5th	20th	

* Von Jaksch. *Prager med. Wochenschrift*, 16, 94, 1891.

† Monson and Oertel. *New York Med. Journal*, Feb. 4, 1893.

‡ Spiedhoff. *Ueber Ehrlich's Diazo-reaction*. Dissert., 1884.

* Warthin. Additional Notes on the Diazo Reaction. *Med. News*, p. 569, 1895.

|| Edwards. *Medical News*, April 2, 1892.

CASE XX.—First examination on the fourth day of the disease: reaction present and continued until the fourteenth day.

CASE XXI.—First examination on the fourth day of the disease: reaction first observed on the fifth day and continued until the twentieth day.

From these observations in typhoid fever it may be concluded (1) that the reaction is very constant in this disease; (2) that it makes its appearance usually within the first week; and (3) that the reaction gradually disappears between the end of the second and third weeks.

Examinations were made in forty-three cases of pulmonary tuberculosis. Of these, twenty-nine were severe cases, with almost constant reaction; fourteen were light forms which did not show the reaction. Of the twenty-nine severe cases, twelve died while still under observation; eight are still under observation in an unimproved condition.

The presence of the reaction in this disease, extending over long periods of time, may therefore be regarded as a grave sign.

The reaction was also found to be present in three cases of erysipelas (for several days), in one case of bone abscess (tuberculous) in one case of liver abscess, in one case of suppurative glandular disease of the neck, in one case of tubercular hip-joint disease, in one case of tubercular spinal disease, in one case of pneumonia (very grave case—died), in one case of carcinoma ventriculi, and in one case of septicæmia.

The reaction was never obtained in healthy individuals; it was not found in four cases of cerebral disease, eight cases of spinal-cord disease, five cases of lung disorder excluding tuberculosis (six cases of pneumonia), four cases of heart disease, two cases of abscess of the liver, ten cases of cirrhosis of the liver, nine cases of gastric disorder (seven cases of cancer of the stomach), twelve cases of gastro-intestinal catarrh with fever, thirty-four cases of gastro-intestinal catarrh without fever, seven cases of dysentery, nine cases of nephritis, eight cases of bladder disorders, sixteen cases of other genito-urinary disorders, ten cases of rheumatism, eleven cases of diabetes (four of which gave Gerhardt's diacetic-acid reaction), five cases of abscess, five cases of hysteria, two cases of epilepsy, two cases of neuritis, eight cases of syphilitic disorders, three cases of skin disease (one case of lupus), two cases of diphtheria, two cases of erysipelas, twenty-one cases of malaria, three cases of sarcoma, five cases of carcinoma, and nineteen cases of injuries of various kinds.

My own observations, therefore, entirely confirm those of Ehrlich. In conclusion, I shall again emphasize Ehrlich's statements:

1. The diazo reaction is of great diagnostic value in typhoid fever.

2. If the case shows a slight or no reaction between the fifth and eighth days, other appearances pointing to typhoid fever, it can be looked upon at once as an exceedingly light form and the prognosis made accordingly.

3. Gastro-intestinal catarrhs accompanied by fever always run their course without a reaction.

4. Very marked and constant reactions may accompany mild forms of typhoid fever and do not justify a bad prognosis.

5. Reactions appearing continuously for a long time in phthisis pulmonalis (two months) always indicate a grave prognosis.

RECENT STUDIES

IN NAUPATHIA, OR SEASICKNESS.

SYMPTOMATOLOGY, DIAGNOSIS, PATHOGENESIS, AND TREATMENT BY A NEW AND EFFICACIOUS METHOD.

By WINSLOW WARNER SKINNER, M. D. (PAR.),
FORMERLY SHIP'S SURGEON ON SEVERAL TRANSATLANTIC LINES, ETC.

(Continued from page 723.)

V. We come now to the most practical chapter of this work—that which concerns the therapeutics of seasickness.

A. *Prophylaxis*.—In regard to the prophylaxis of naupathia, we know of no precautions or remedies for its prevention that are always efficacious, but there is much that one can do to avoid this affection with more or less success.

In the first place, the mental state of the voyager is of great importance. The firm will, the determination not to be sick, is useful up to a certain point. Again, as has been already remarked, the lively interest in the voyage itself, the keen enjoyment of this mode of travel, have often prevented a person from feeling sick while the novelty of the situation lasted.

Various kinds of apparatus have been tried to annul the movements that the body undergoes when aboard a ship during the rolling and pitching. Thus M. Neveu-Derotrie invented an easy chair, made to hold a person always in an upright position. But it failed to obviate all the trouble. M. A. Déchambre has very justly observed that this chair can not avoid following the rise and fall of the ship, which are the most disagreeable movements of all. We would add that the lateral movements of the ship also can not be avoided by using this apparatus.

According to a principle similar to the one embodied in the easy chair, suspended saloons have been constructed upon certain ships. Messrs. Bessemer & Reed constructed in this way a boat called the Bessemer. Movements due to rolling may, according to the theory, be thus avoided, but not movements due to pitching (or those taking place in a vertical plane), which are the terrible ones. At all events, the trials of this steamer were not successful. Attempts of this kind have doubtless been abandoned.

Another effort to annul the effect of the waves was made when the steamer Calais-Dover was built. It consisted of two hulls fastened together—a sort of nautical Siamese twins. It was hoped that rolling and pitching would be checked by this combination before they caused much discomfort, but this experiment also proved a failure. The double boat is being used at present as a marine hospital in the Thames, near London.

Large ships are naturally less tossed about than small ones are; therefore it is advisable for one susceptible to seasickness to select a large ship for his voyage. But more important still is the situation occupied by the passenger.

Thus the middle of the ship is the most favorable for the avoidance or the cure of naupathia, since the motion is here the least. For this reason, as is well known, a berth amidships is the most desirable for a person likely to be sick. A stateroom as near as possible to the ship's center of gravity is the best.

A person standing or sitting is more exposed to seasickness than a person lying down. Hence the recumbent position should be assumed by all who wish to recover from an attack, or, being in danger of it, wish to escape it. This fact is in direct accordance with our theory of the cause of seasickness, and brings a strong confirmation of it.

Many authors (Jobard, Fischer, Kéraudren, Fonssagrives) recommend binding the abdomen by means of a broad bandage. Our own personal experience with it convinces us of its usefulness. It certainly gives great relief, and affords a needed support to the abdomen when exhausted by incessant retching and vomiting. One of our lady patients testified to its utility by saying she could not live without it. The bandage employed may be only a towel or napkin, carefully pinned or sewed around the body so that it will fit the abdomen. It should be wide enough to compress the abdomen from the xiphoid appendix to the pubis without being so tightly drawn as to notably impede respiration. If the abdomen should become so hollow as to render it impossible to accurately fit a bandage around it, the hollowness may be filled up by a soft blanket folded smoothly and fitted into the depression which is most considerable in the lower portion of the region—*i. e.*, between the ossa ilia.

So much for the mechanical means of prophylaxis. They obviate to some extent the sufferings of seasickness. Let us turn now to the pharmaceutical means about which the same remark applies.

Alcohol in various forms has often been tried by voyagers on embarking who fear the sea. The effect of this agent is uncertain. Some are doubtless helped by it. The same is true of ethylic ether. Certain aromatics have a short favorable effect on a few individuals. The most used are peppermint and cloves. Smelling-salts sometimes ward off the first feeling of nausea, the forerunner of naupathia.

Other substances have rendered real and undoubted service in prophylaxis. They are chloral hydrate, the bromides, morphine, antipyrine, quinine, and, according to some writers, cerium oxalate. Dr. Pritchard (*Lancet*, 1871) has, for one, tried the first-named agent with great success during the short crossing from Dover to Calais. He took enough, however, to put him to sleep.

The sodium and potassium bromides, taken during the three or four days immediately preceding embarkation, have occasionally proved effectual. A drachm (four grammes) per day should be taken in divided doses. Morphine has been recommended, but we have had no personal experience with it as a prophylactic.

Sulphate of quinine in the dose of one gramme (fifteen grains), taken four hours before embarking, has recently been praised by Dr. Ch. Richet, of Paris.

All of the above substances operate by diminishing the reflex activity of the nervous centers, which we have seen

to be one of the chief factors in the causation of seasickness. They also (excepting, perhaps, quinine) produce sleep if pushed far enough, and thus they suspend all consciousness of suffering. Pushed to that extent, however, they deprive one of the pleasures of the voyage, as well as save one from discomfort.

There is an entire class of substances which, according to theoretical views, ought to produce a favorable prophylactic result, and these are the so-called *neuromuscular* agents or drugs, some of which have actually been proved useful. All of these substances, nevertheless, are not equally effective. The following alkaloids, which until recently have been classed among the moderators of nutrition, possess properties that justify their admission into the neuromuscular group. These are cocaine, caffeine, theine, and perhaps also theobromine, guaranine, and kolaine. Taken in suitable quantities, these substances increase the activity of the nerve cell and of the unstriated muscular fiber, as well as that of the striated. Thereupon result several effects, of which the principal one which interests us is the *elevation of the arterial blood pressure*. A great number of experimenters have verified this fact, and we have also repeated these experiments with a similar result.*

Cocaine has often been efficacious as a preventive of seasickness. It acts by producing sometimes sleep, sometimes mental stimulation, sometimes, it is believed, augmentation of the blood pressure, as experimenters have shown many a time. Its action, though, is not uniform, and we have seen this alkaloid produce very alarming accidents in seasick women. Several times after it had been taken the number and violence of the vomitings increased. Once a woman having received a hypodermic injection of 0.05 gramme (five centigrammes) of cocaine chlorhydrate presented dangerous symptoms half an hour afterward. The heart beat 180 times per minute; the eyes were red, injected, and tearful; the pupils were ecstatic. She had paroxysms of alternate nervous laughing and crying, and did not seem to understand questions addressed to her. Her replies were vague and incoherent, or else she did not reply at all. This state lasted twenty minutes, after which the pulse fell to 134 and its tension increased, and her replies became clear. Since then we have not injected cocaine in naupathia. Administered *per orem*, however, cocaine has a good effect.

Caffeine and coffee are excellent remedies in this affection. More will be said of them and of cocaine under the rubric of curative treatment. We can strongly recommend voyagers subject to seasickness to take a cup of a good infusion of pure coffee, pretty strong, at the moment of feeling the *first indications* of the approach of the trouble—*i. e.*, at the first suspicion of nausea, vertigo, prostration, headache, or even of greater paleness of the face than usual. If one waits too long, the stomach will no longer be in a state to absorb anything, for as the sickness increases the stomach is going to secrete a lot of watery mucus which will be ejected by emesis and the coffee with it.

* W. Skinner. Les effets pharmacodynamiques de certains alcaloïdes, etc. *Bull. gén. de thérapeutique*, July 15, 1886, p. 29.

The coffee beans for this infusion should be quite ripe so that they shall contain the maximum of caffeine, and should be moderately torrefied in hot air to favor the formation of a certain quantity of caffeine. The infusion should be taken hot and but slightly sugared, if at all, but the dose should not be repeated too often, for it has been noted that a secondary lowering of the blood pressure has occurred upon the ingestion of too much caffeine. In any case, after the lapse of one or two hours, if the need of a new dose makes itself felt, one might take a strong infusion of black tea (pekao tea if obtainable) in the proportion of three grammes (forty-five grains) of tea to a hundred grammes of water, for, in spite of the identity of theine and caffeine as to their chemical formula, tea does not produce quite the same effect as coffee.

B. Curative Treatment.—The curative treatment of naupathia has up to the present time been much neglected, and when means have been employed they have been of great diversity, and usually inefficacious. So true is the last statement that nearly all ship physicians wholly renounce all attempts to cure the affection and content themselves by merely offering a few suggestions toward palliation, and the patients themselves are generally resigned to await the spontaneous termination of their woes without disturbing the doctor. We see no reason why this state of helplessness should last any longer, for our endeavors to find a remedy have resulted in the employment of a therapeutic method quite simple in itself yet followed by almost constantly favorable effects.

Before entering into the details of our new method, a word may be said of the few other methods of treatment which have also been suggested by purely theoretical views of the nature and cause of seasickness. Thus Sémanas prescribed quinine sulphate for his imaginary marine miasm. Chapman advised the application of ice along the vertebral columns by means of his special apparatus or spinal ice bag in order to combat the supposed abnormal afflux of blood in certain parts of the spinal cord. We have never known a case in which it was tried, and its application would seem *a priori* inconvenient and disagreeable. Le Coniat practiced with more or less success the faradization of the epigastrium and the hypochondriac regions, employing conjointly with this the painting of a solution of atropine (0.02 to 0.05 gramme in thirty grammes of water) over the region of the stomach. He claims to have obtained really good results, but he did not begin his treatment during the first day of the sickness. This delay permitted the patient to get well, or nearly well, spontaneously, so that one can not tell how much of the cure was due to treatment. Then again the absorption of a certain quantity of atropine would alone cure a mild case.

Antipyrine as a curative agent has been loudly vaunted by some ever since the communication of Dr. Ossian-Bonnet to the Academy of Medicine of Paris in 1887. This author advises antipyrine to be given in the dose of one gramme (gr. xv), repeated if necessary until the patient is better. He gives it also subcutaneously if vomiting is severe. Our own limited experience with this drug was unsatisfactory.

Cocaine has cured some cases, and a former colleague of the author's, Régnault, of Paris, has published results of this treatment (*Progrès méd.*, 1887). The doses of this powerful drug that he gives, however, are, in our opinion, eminently dangerous. But we have said in another place that cocaine given in small doses by the mouth is an excellent remedy.

There is an unusually effective and agreeable combination of medicines put up in liquid form and known as naupathic elixir, which has shown itself to be very useful in preventing and curing seasickness. It is said to contain seven different ingredients, each of which has been found helpful in this affection, and two of these are known to be caffeine and cocaine. It is sold by Hazard, Hazard, & Co., of New York. We have personally tried this elixir on several of our voyages as ship's surgeon, and have found it to be very grateful to our patients.

The treatment upon which we rely with the greatest confidence, however, is that about to be described. We were led to choose the two substances which form the base of the medication in the following manner: After having studied the symptoms of naupathia in their completeness, as if no physician had ever seen or written about them before, we were convinced that they were due, above all, to the lowering of the blood pressure, as has been already said, and that this lowering depended upon a paresis of the centers of innervation of the heart and of the arteries, as was above explained. There only remained, then, to choose from the *materia medica* the suitable substances that would raise that pressure by acting upon the nervous centers and the unstriated muscular fibers and to administer them in the most advantageous manner. We chose to this end atropine and strychnine employed simultaneously. But how should they be given? On account of the frequent vomiting in seasickness, by which any ingested substance would be rejected and lost, on account also of the difficulty of absorption in a seasick stomach, where the chief osmotic current is flowing toward its cavity, and, lastly, on account of the action of the liver by which it arrests and transforms these and other alkaloids entering it from the stomach and bowels (Hegar, Schriff, Lautenbach, Jaques, Roger), it was necessary to choose some way of administration of these alkaloids other than that of the gastro-intestinal tract. The hypodermic method seemed to us the best, and it is in this manner that we always exhibit these substances in seasickness.

The dose of these agents by subcutaneous injection in a well-developed case of naupathia should be for adults from a half to one milligramme of atropine and one milligramme of strychnine dissolved in mint water. The following is the formula we employ the oftener:

Atropin. sulphat.	0.02 gramme;
Strychnin. sulphat.	0.04 “
Aquæ menth. pip.	40.00 grammes.

One gramme, or one cubic centimetre, of this solution contains half a milligramme of atropine and one milligramme of strychnine. In hot climates this solution loses a little of its strength at the end of a month, and it should therefore be frequently renewed when used in the tropics.

Although we have employed these active substances hundreds of times, we have not yet seen the least harmful result in adults. In regard to the distilled mint water that figures in the formula, we are unaware if it has an action that should be taken into account. It was selected on account of its more or less merited reputation of usefulness in seasickness. If in the space of two hours after the first injection the patient is not cured, a second injection of one gramme (or one cubic centimetre) of the solution may be injected, and even a third two hours later. But we esteem that it is not prudent to exceed this number of hypodermic injections per day in naupathia.

Children and adolescents are very susceptible to this medication. A child of two years and a half (Case III, see *Clinical Reports* at the end), sick during fourteen hours, was promptly and definitively cured by the injection of one sixth of a gramme of the solution—that is to say, by circa 0.00008 of atropine and 0.00016 of strychnine—a truly infinitesimal dose. A boy of six years was cured by the injection of a fourth of a gramme of the solution; another, eight years old, by half a gramme, which was somewhat too much for a lad of his age. (See Cases VI and VII.)

The effects of this medication are often surprising. In the majority of simple cases of seasickness the patients cease vomiting at once after having received a single injection of one cubic centimetre of the above solution. Soon afterward they feel no more nausea, cephalalgia, or distress. Only a few minutes are required for this result to be obtained. Occasionally two injections are necessary to produce complete euphoria.

Everybody knows what a pitiful spectacle a really very seasick person presents. He is painfully seated near the ship's rail or is lying down, caring not how or where, so long as he can vomit easily; he is pale, apathetic, vomiting, and suffering from headache and vertigo. But the injection of these alkaloids transforms this person in a little while. He ceases to groan, the vomiting stops, color returns to his cheek, and he affirms that he is "much better," or that he does not suffer any more at all. If the injection is given during the daytime he almost always falls asleep for half an hour or longer; if given in the evening, when the patient has retired for the night, the sleep is calm, prolonged, and restoring—so much so that when the physician visits his patients on the following morning he hears them assert with satisfaction that "the night was passed very well." This means a great deal to a person who has been kept awake a night or more by seasickness.

One of the best proofs of the efficacy and innocuousness of this method is found in the fact that patients ask for a repetition of the treatment, and mothers who have been treated have it done to their children.

There is another substance which we have employed in seasickness with good results, and that is caffeine given hypodermically.* It acts somewhat more slowly than the alkaloids just named, and its effect is less constant, but it is often efficacious, as the cases related below will show.

In our practice we used the formula of Tanret and Dujardin-Beaumetz, which is as follows:

Caffeinæ.....	4 grammes;
Sodii salicylat.....	3 "
Aq. dest.....	q. s. ad 10 c. c.

Dissolve by gentle heat. Each cubic centimetre contains 0.40 gramme (40 centigrammes) of caffeine. A single dose of 0.30 gramme injected subcutaneously cured a patient completely in seven hours who had been sick three days. (See Case XI.) In another case this dose cured in five hours in the same conditions.

A mixture of cocaine, caffeine, and atropine did not produce such good results as the mixture of atropine and strychnine.

Possible Objections to this Method.—The administration of such toxic substances as atropine and strychnine requires, of course, great attention and prudence on the part of the physician, and none but a physician should give these agents. He should carefully observe their action, and, above all, before injecting them he should accurately proportion the dose to the age and the constitution of each patient. Atropine ought not to be administered too often; once the proper dose exceeded, there follow depression and enfeeblement of the patient.

It was said above that we have never seen harmful effects due to these substances, given as directed. However, there are sometimes produced certain disagreeable effects, though they can hardly be said to be important. The most frequent of these effects is the dryness of the mouth and air passages due to the atropine. But the patients prefer this to being seasick. Children sometimes present a generalized redness of the skin due to the same drug which may cause parents some anxiety, but it soon disappears. Once we noted irregular pulse in a boy after a single injection (Case VI), but his general condition was so good, he laughed and played so naturally, that all idea of danger was rejected.

Atropine given even in a small dose in seasickness sometimes causes temporary amblyopia (Case V). In such cases the proportion of strychnine should be increased and a somewhat smaller quantity of the solution should be injected.

Not infrequently passengers that have been quite severely sick present a certain degree of prostration and an indisposition to make any muscular effort, even after they have been entirely cured of their naupathia by the injection of strychnine and atropine. They are certainly cured because they feel no more nausea, or vertigo, or distress, and they have no more vomiting, pallor, ptalism, etc. This state of languor, of reluctance to move, may last from six to twelve hours, seldom longer. It may be entirely due to the exhaustion which a severe attack of seasickness leaves after it, but it might possibly also be deepened by the action of the atropine absorbed. At all events, the termination of this state is always favorable.

The seat of the injection is not ordinarily painful. Rarely it leaves a painful spot after it, which is tender for a day or two, and very rarely it produces a redness and swelling quite annoying. But we have never observed an abscess

* W. W. Skinner. Treatment of Seasickness. *British Medical Journal*, October, 1886.

or phlegmon as a result of these injections. The inflammatory phenomena subside spontaneously and all is soon in order again. It should be remarked that these accidents are not disagreeable enough to prevent the patients from seeking the same treatment again as soon as they feel seasickness return.

The counter-indications of this method are quite rare. When the diagnosis has been correct we have never observed a case rendered worse in any respect by the exhibition of these substances, even when the patient had another disease coexisting with seasickness.

It happens from time to time that the injection of these two remedies does not cause any amelioration; the trouble continues in spite of all and lasts long. In these cases it is almost certain that the patient has one of those affections that were named among the predisposing causes of naupathia and which are, above all, affections of the circulatory apparatus, as has already been explained.

What is it that we mean by the cure of seasickness? Do we mean that as soon as the remedies are given the vomiting patient gets right up out of bed and promenades the deck as gayly as if in a ballroom? By no means. There is no power in the universe that could produce that result while the sea is still rolling high. But we do mean that the vomiting and even the nausea stop, that the splitting headache stops, that the patient is comfortable, that he or she generally falls asleep a little while, and that soon afterward food is relished and retained. The patient may still remain in bed, but he is not seasick, and it is not necessary to wait for still water before this result can be obtained. Can more than this, or as much as this, be said of any other method of treatment of seasickness?

Let it suffice to say, in conclusion, that the judicious employment of this method never does any serious harm; that it may very rarely be inoperative, owing to some cardiac, vascular, or nervous lesion; but that *in simple naupathia it always produces amelioration and generally a cure of this affection.*

(To be concluded.)

CURED CASES OF ATROPHIC RHINITIS.

By JOHN DUNN, M. D.,
RICHMOND, VA.

In August, 1893, Mrs. K., aged thirty-two years, came to consult me about her eyes. Examination of her nose revealed a condition of affairs I had for a long time wished to be able to say I had recognized beyond question. I have called it advisedly a cured case of atrophic rhinitis. The condition of the nasal cavities? At first glance one sees a mucous membrane whose color is perhaps a little paler than normal; the inferior turbinates appear shrunken—so contracted, as it were, that on the left side, in order to see the inferior turbinate at all, it is necessary to turn the patient's head much toward her shoulder; the middle turbinates are smaller than normal, while their inferior edges have lost to some extent their peculiar glazed, moist appearance and their regular curve. Further than this a hurried examination reveals nothing. "Doctor, I wish you would not say to me in the presence of my companion anything that would lead her to suspect that I once had *ozæna*." This remark made

me examine more closely the appearance of the nasal mucous membrane, and it quickly became apparent why this mucous membrane was "a little paler than normal," for it was the seat of numerous minute depressions—all small, some larger than others—irregularly placed; these depressions, now plainly visible as minute scars, had neither the healthy red color nor the moist appearance of the adjacent healthy areas of mucous membrane. And to what part of the nasal cavities were these scar areas confined? To no one part of it. They were spread promiscuously over the turbinates, septum, and floor of the nose, and were very plainly marked and larger than elsewhere near the posterior border of the septum. But, for all this, there was no visible sign of any present active inflammatory process. The inflammation had disappeared, was no more. The atrophic rhinitis was cured.

The scars were the visible signs of there having been present in the nose at some past time a very general and severe inflammation. Mrs. K. then told me that her "catarrh" began to be annoying when she was about eighteen years of age, from which time until she reached the age of twenty-eight it had been the bane of her existence. Nor had she been able to escape the horrid odor that accompanied the constant accumulations of scabs in her nose. For four years she has had practically no nose trouble whatever, no odor (and there was none present the times I examined the nose), no unusual nasal discharge. "My nose nowadays is not the cause of my soiling a pocket-handkerchief once a month." Nor is she annoyed by a sensation of undue dryness of the nasal cavities. In short, her nose is no longer the source of discomfort. The sense of smell did not return with the disappearance of the inflammation.

At the same time I had under my care Mr. M., aged twenty-six years, who for fifteen years has been a victim of atrophic rhinitis. In the light of the case of Mrs. K., I examined his nose carefully, to find here also that the scabs which accumulated along the floor of the nose were not there as the result of gravity, but were the result of an inflammatory process affecting the mucous membrane covering the floor of the nose; that the septal mucous membrane was a source of these scabs, especially that part of it situated near the posterior edge, where Zuckerkandl places the plicæ septi, and where we often enough find the so-called "ballooning of the septum," both of the false and true hypertrophic kind; and that, furthermore, they were numerous and hard to detach in the region of the pharyngeal tonsil; and, of course, numerous, continuous, thick, etc., over the turbinates. In short, the usual picture found in old cases of this trouble.

Let us now see how far this cured case, as I have termed it, bears out the teachings in regard to the origin, nature, and course of atrophic rhinitis. On this subject the first article to which I had recourse was that by Dr. John N. Mackenzie—*Cirrhotic (Atrophic) Rhinitis*, in Burnett's *System of Diseases of the Ear, Nose, and Throat* (1893). Under *Ætiology* there is "a classification of the stages of chronic nasal inflammation" into "simple inflammatory, hypertrophic, atrophic"; and in the concise explanation of these three stages all of the attention is turned to the condition of the erectile tissues of the nose, as though in them were to be sought the cause and sole places of development of this disease. No mention is made of the condition of the rest of the nasal mucous membranes. Under the next heading—that of Pathology and Pathological Anatomy—Dr. Mackenzie says: "The gross anatomical appearances of the first stage consist essentially in localized or diffuse injection,

with moderate swelling of the tissues. There is very little, if any, swelling of the mucous membrane proper, the *main condition being repeated engorgement of the erectile bodies.*" Then follows a description of the changes through hypertrophy and atrophy of the *erectile tissues*. In part second of this division Dr. Mackenzie mentions in a general way the changes the nasal mucous membrane undergoes, without any special reference to the membrane covering either the floor of the nose, the septum, or the postnasal space. Under Symptoms and Diagnosis no specific mention is made of the condition of the mucous membrane of the floor of the nose or of the septum. "The pathological history of 'ozæna' is, moreover, that of the conversion of hypertrophic changes into those of an atrophic form. In the rhinoscopic image, in the microscopic section, the processes of hypertrophy and atrophy are found side by side. More than that, the atrophic changes are more pronounced in situations in which the catarrhal inflammations originally developed."

"As the result of the repeated erection of the cavernous tissues, which occurs in the first stage, a paralytic or subparalytic state of the resilient and contractile elements of the walls of the erectile cells develops. . . . It is this subparalytic condition of the tissue which is the connecting link *between the simple and the hypertrophic stages.*"* We may admit all this as taking place, and evidences of such transformations from congestion to hypertrophy and thence to atrophy are to be seen not only in the cavernous tissue of the turbinates, but in the faucial and pharyngeal tonsils, and also, I believe, commonly enough in the drum membrane and conjunctiva. Hypertrophied tonsillar tissue atrophies by exactly the same process as do the turbinate bodies—by the formation of new connective tissue which in turn contracts. Nor is this process of hypertrophy and thence atrophy of the turbinate bodies confined to the period of life when atrophic catarrh holds sway. I remember to have removed from the inferior turbinate of a lady more than sixty years of age a *localized atrophy*, the result of a previous hypertrophic condition. More than this, these hypertrophic conditions of the turbinates may exist without there being any demonstrable affection of the general mucous membrane of the nose. These hypertrophic conditions may affect one part of the turbinate more than another; most frequently the dependent and posterior parts of the turbinates show its presence most markedly; or they may be present in the inferior and not in the middle turbinates. Hypertrophy of the turbinates may result from various causes, and may result in a more or less localized cirrhosis of the turbinate tissue; but that *per se* "repeated erection of the cavernous tissues" is ever the cause of "atrophic rhinitis" I can see no reason for believing. The fact that during the history of atrophic rhinitis the turbinate tissues show, under the microscope, evidences of a process resembling cirrhosis of the turbinates, does not prove that simple cirrhosis, "the result of repeated engorgement of the cavernous tissues," is the cause of atrophic rhinitis. Nor is the fact that, as the result of atrophic rhinitis, the changes most noticeable to the eye are to be found in the

turbinate tissues any reason for selecting these as the regions where the disease originates. Atrophic rhinitis causes marked changes, both gross and microscopic, in the turbinate bodies; but the same disease produces also marked changes in other parts of the nose where the erectile tissues are not, and hence it would seem to be the rational plan to describe at length the changes occurring in the simpler tissues and in those tissues that are common to all the nasal cavities, and from these changes to arrive at the nature of the disease process producing them.

"The histological picture is simply that of a gradual atrophy or wasting away of the different layers of the mucous membrane, and the conversion of their individual elements into fibrous connective tissue, a purely cirrhotic process." And this seems to sum up Dr. Mackenzie's teachings about the nature of "atrophic rhinitis." This is no explanation of the nature of "atrophic rhinitis," and contains nothing in any way satisfactory about the origin of the disease. It does not in any way differentiate "atrophic rhinitis" from any other form of rhinitis where, as a consequence of hypertrophy, atrophy follows; and yet "atrophic rhinitis" surely has characteristics sufficiently pronounced to claim at least one or two determining factors which do not belong to certain other forms of nasal hypertrophies.

"Repeated erection of the cavernous tissue"—Dr. Mackenzie's teaching as to the origin of "atrophic rhinitis"—will, so far as I have been able to see, never result in this disease. I have never seen a case where it seemed in any way likely that such was the sequence of events, while the numerous cases of chronic erection of the cavernous tissues—*e. g.*, where a septal spur or deviation acted as an exciting cause—show always a picture so different from anything seen in atrophic rhinitis that one is forced to the conclusion that alone "chronic erection of the cavernous tissues" can never cause "atrophic rhinitis." Further, I see no reason for finding in a "paralytic or subparalytic state of the resilient elements of the walls of the erectile cells" anything to represent the first stage of a process which runs amuck through such regions as the floor of the nose and the pharyngeal tonsil as well as through those regions blessed with cavernous tissue. We see frequently enough children who suffer for years from a practically continuous erection of more or less of the cavernous tissues of the nose, the result, in part, of the existence of hypertrophied naso-pharyngeal tonsil, who nevertheless attain their maturity without a trace developing of that abomination of desolation—atrophic catarrh.

Dr. Bosworth (*Diseases of the Nose and Throat*) believes that, "commencing in a desquamative inflammation of the nasal mucous membrane, there is set up the disease, purulent rhinitis, which constitutes the early stage" of atrophic catarrh, "that form of catarrhal inflammation of the nasal mucous membrane which, developing in the direction of glandular atrophy, leads eventually to a more or less complete destruction of the muciparous glands and follicles, together with a true cirrhotic condition of the mucosa proper, resulting in a condition of the nasal mucous lining in which the prominent and characteristic symptom consists in the

* Italics are Dr. Mackenzie's.

formation of crusts and scabs, which, lodging in the sinuous passages of the nose, undergo decomposition and become the source of a fœtid and offensive odor." "Begins as a desquamation of the epithelium from the surface of the mucous membrane." While the inflammation is confined to this "the discharge is thin and muco-purulent." "Naturally, however, the morbid process will not confine itself to the superficial layer of the membrane." "The glands become involved; then follows a loss of secreting power. The muco-purulent discharge assumes a more inspissated character, and, lodging upon the convex surfaces of the turbinated bodies, dries and forms a closely adhering film, clinging to the membrane in such a way as to interfere with the vascular circulation." And much of the further history of atrophic rhinitis is attributed by Dr. Bosworth to the repeated and continuous embraces of these dried scabs. While I believe with Dr. Bosworth that the fact that the secretions become inspissated and adhere to the diseased mucous membranes is in a measure responsible for many of the changes occurring later in the history of atrophic rhinitis, I can not agree with him in regard to the manner in which these changes are brought about. "The mechanical action of this dried film is not unlike that of collodion, for in drying it contracts and embraces the turbinate bones in a grasp which necessarily must interfere with the circulation of the blood in the venous sinuses." The crusts form. Why? Because of the changed nature of the secretions from the mucous membrane. The watery part of the secretions from the more diseased areas is deficient in quantity and the inspired air quickly extracts it all, leaving on the surface a dried film. As long as this film remains porous the inspired air continues to draw water for its own purposes from the secretions below. The film becomes thicker; there remains, however, beneath the film, which eventually becomes a crust, a certain amount of the secretions which never dry. Not only is the watery part of these secretions deficient, but there is a deficiency of the salts found in normal mucous secretions. There is thus lacking an element important for the separation of the mucoid elements from the surface of the diseased areas, from the mouths of the diseased glands. Witness how easily and thoroughly weak saline solutions cause the detachment of these scabs. Not only are the secretions deficient in water and the salts, but there would seem to be an increase in the mucin, or some mucoid substances excreted by these diseased areas; perhaps there is more or less fibrin in the secretions. Furthermore, the destruction of the mucous membrane with its glands results not only in a decrease of the relative amount of water secreted, but also the total amount is insufficient. The scabs form; their surfaces are drier the further they are from the mucous membrane beneath them. The injurious effects of these dried scabs are not to be sought in the compression they exert on the membrane beneath; for it seems to me this is the least of the evils that result from their continuous presence. Let us see for a moment some of the other conditions resulting from their presence. To a certain extent these scab shields furnish homes for the propagation of the microbial agents that in-

fest a diseased mucous membrane; their multiplication and the retention of the products of their destruction against the mucous membrane must, it would seem, be a factor in the continuance of the inflammatory condition already at work in the mucous membrane. Moreover, these scabs prevent the mucous glands from properly discharging their contents, offering as they do obstructions over the mouths of these glands. Again, the presence of these scabs does not allow in the mucous membrane beneath them that ceaseless activity which, in the normal nose, is called into play by the passage of air over its surface, which activity is necessary to the proper development and continuance in its normal state of the mucous membrane. These scabs in the above ways, then, tend to perpetuate the disease in the membrane over which they form far more than by the pressure they exert on the membranes beneath them.

Those who hold that atrophic rhinitis is one of the gifts of inheritance, placing it in line with rachitic and syphilitic teeth, interstitial keratitis, strumous glands, etc., have at first glance a strong case. "Grandmother and grandchild," "father and child," "brother and sister," are some of the coincidences, if you will, of our note-books. On the other hand, however, there are so many cases where atrophic rhinitis has not a single companion to champion its claim to heredity, the concomitant affections of the ear, eye, or throat being offsprings of its own existence, that we must look to other influences for our cause.

"Atrophic rhinitis" must have a beginning somewhere. Its existence as an affection at once of the turbinates, floor of the nose, septum, upper part of soft palate (part continuous with floor of the nose), pharyngeal-tonsil region, and, at times, invading other domains—lacrimal duct, etc.—would seem to show that it did not claim any tissue peculiar to one region of the nose as its point of origin. The nasal mucous membrane has an epithelial layer, an adenoid layer, and a connective-tissue layer. To Bosworth belongs the honor of first maintaining that atrophic rhinitis has its origin in early childhood in purulent rhinitis, and it would seem that this is its true origin. Beginning as a purulent affection of the nasal mucous membrane, at first the chief changes are shown in the epithelial layers; later on there results massing of lymphoid cells in the adenoid layer, and, as the prime cause of inflammation of the mucous membrane is not removed, eventually there results the development of new connective tissue in the adenoid layer—for the rest its distinctive effects produce, in the course of time, atrophic rhinitis. Atrophic rhinitis is the result of a chronic inflammation, originally purulent, of the nasal mucous membrane, the result of untreated purulent rhinitis of children. This purulent rhinitis is something more than a simple catarrhal affection, the result of congestion changes in the mucous membrane. Catarrhal rhinitis affects by far the larger per cent. of all children in this part of the world. Purulent rhinitis in children is comparatively rare. Bosworth says: "I know of no assignable cause for the disease (purulent rhinitis of children) other than taking cold" (*Diseases of the Nose and Throat*, vol. i, p. 157). I am not inclined to agree with Dr. Bosworth that "taking cold" is the cause of purulent rhinitis. I think rather that the pres-

ence of an infectious principle is a *sine qua non*. Purulent rhinitis is in many respects comparable to purulent conjunctivitis. Neglect this latter affection and it will do for the mucous tissues of the lid what purulent rhinitis does for those of the nose. The anatomical variations will account for the different pictures presented. Purulent conjunctivitis always receives more or less attention. Purulent rhinitis of children receives, in all but the most exceptional cases, what amounts to utter neglect; partly because it is a painless affection and causes no complaint on the part of the child; partly because the parents do not appreciate its gravity; and, in a very great part, because under all circumstances treatment is difficult to apply properly.

Although I have seen purulent rhinitis in the infant in arms, I have never had the opportunity of seeing this disease in its incipency. It has always already existed "weeks," "months," or "years" before the case has been brought to my attention. I do not, then, know the history of its beginning; but I can not believe its origin to be identical with the ordinary catarrhal rhinitis of children, for were this so "ozena" would be pre-eminently the most common disease of the Atlantic States.

The more I reflect on the case of Mrs. X., the more pleasing do I find certain of the lessons it seems to teach. In the first place, it allows us to say that some cases of atrophic rhinitis are eventually permanently cured. We learn from it that the inflammatory condition at the bottom of the whole trouble may disappear; that the formation of new connective tissue ceases after its disappearance; that the inciting cause to the formation of new connective tissue having been removed, that already formed behaves just as similar tissue does in any scar; nor are, then, the pleasing effects of time less apparent in the mucous membranes than in the outer skin. When the battle is once over and the enemy has retired from the field, it is wonderful to what extent the damage done is repaired. Where the inflammatory process has been severe enough to destroy, in part or whole, the cavernous tissues, it does not seem likely that Nature can regenerate them. The regenerative power of the mucous epithelium is well known, and it seems to me we are forced to admit that there is also a power of regeneration for those elements of the adenoid layer essential to the life of the epithelium on its surface—a power which asserts itself to the elimination of the new-formed connective tissue, the inflammatory cause having been removed.

Considering then atrophic rhinitis, as I do, the result of a definite inflammatory process of the nasal mucous membranes, which process, owing to the anatomical conditions existing in the nose, is capable, if proper treatment be not applied, of continuing itself indefinitely and of producing by the formation of new connective tissue the picture so well known to all rhinologists, the prognosis of this disease I am willing to view more favorably than many do. As long as scabs continue to form in the nose the inflammatory process must be considered to exist, the disease to be not cured. Of course, in speaking of cured atrophic rhinitis, I do not mean that the nose, then, has the power of perform-

ing all of its duties as well as a normal nose. Far from it. The inflammation has destroyed the olfactory nerve terminals, and the sense of smell is often completely abolished; the more or less complete destruction of the erectile tissues deprives the nose of more of its power to do work for the economy; the widening of the nasal air spaces has, too, its effects for change from the normal. In the face of all this, those cases from which the active inflammatory process, the cause of this disease, has disappeared, should be considered cured.

In regard to treatment I have nothing new to offer. The following method has, however, proved at my hands to be the most satisfactory I have as yet had any experience with. Like all other methods that have any value in the treatment of atrophic rhinitis, it requires patience and care on the part of the physician, and the assistance of the patient. The nose must be cleansed of all scabs and secretions. This part of the work must be most carefully done. We must remember that atrophic rhinitis is not essentially or primarily an affection of the nasal cavernous tissues, but that the mucous membrane of the floor of the nose; of the septum its whole extent, and especially near its posterior border medially; of the turbinates, inferior and ethmoidal; and of the region of the naso-pharyngeal tonsil—are all involved, and that the removal of the scabs clinging to the inferior border of the turbinates is not sufficient to cleanse the nose. The use of the spray I consider to be far from the most efficacious means of cleansing the nasal cavities. Preferable for this purpose are probes and cotton. The best and cheapest nasal probes with which I am acquainted are made from knitting needles. The sharp ends are cut off so as to render them blunt; the extremities of these blunt needles are then held over a gas flame for a minute so as to slightly roughen them, that the cotton when wrapped about the probe will not slip. For the purpose of cleansing the nose salt water is used—half a teaspoonful to a glass of tepid water. A wad of cotton as large as will pass easily into the entrance to the nose is wrapped about the end of the probe; this is dipped into the salt water, and passed through the speculum into the nose.

The nasal cavities should be thoroughly illuminated so that all of the work done can be seen. The contact of the wet cotton passing over the scabs suffices in most cases to detach them, so that in a few seconds all of the scabs are sufficiently loosened to allow the patient to blow them from the nose. Occasionally it happens, however, that here and there the secretions require for their removal a second or third application of the wet cotton, and also a little rubbing. With the use of this cotton wet with salt water the nose can in a very few seconds be cleansed of every particle of its secretions. When the mucous membrane is clean, the next step is to make an application of nitrate of silver (ten to forty grains to the ounce, according to the state of the mucous membrane) as far as possible to the whole of the diseased areas. This is applied in exactly the same manner as the salt solution. Naturally a part of the silver is neutralized by the salt water left in the nose. Enough, however, reaches the mu-

cous membrane to answer our purposes. Immediately following the application of the silver is another application of the salt solution in order to neutralize whatever of the silver there may remain (just as is done after silver applications to the conjunctiva). With the probe and cotton the whole of the diseased areas should next be washed with one-to-twelve-hundred bichloride-of-mercury solution, rubbing well with the cotton thus wet the areas where the scabs were thickest. Following this, the nasal cavities should be sprayed with some liquid alboline solution, generally the now well-known camphor-menthol one. When the patient is first seen this treatment is applied daily, then every other day, then twice a week, and at the end of about two months once a week. Generally the patient is pleased, in spite of the somewhat severe treatment, with the results. The patient's part of the treatment consists in washing out the nose night and morning with a weak salt solution, for the application of which he prefers a spray, and when the nose is as clean as he can get it, in applying some of the following salve:

R Anise oil..... ʒxx;
Beechwood creasote..... ʒxx;
Vaseline..... 3j.

M. Sig.: Nose salve.

The application of this is made by placing a small piece of the salve in one nostril; then, closing the other, the patient draws in his breath forcibly. This salve, although it reaches only a small portion of the diseased areas, proves, in many cases, very grateful to the patient. I do not profess to have obtained by this method any cures in cases of atrophic rhinitis. It has, however, given general satisfaction when it has been used, and so lessens the odor and the sensations of stuffiness and dryness about the nose as to render its use worthy of trial where one has not already a method which is as satisfactory as one knowing the nature of this disease could expect. It does produce marked changes in the condition of the nasal mucous membrane, and while it may not bring about within a given time a cure, it seems to assist Nature in its struggle to restore to the nose a lining which will perform the functions natural to this organ. Its use persisted in will, I believe, although I am unable to speak from results obtained, bring about eventually a condition of the nose described in the beginning of this article as found in the case of Mrs. X., and so allow us to speak with authority of "cured cases of atrophic rhinitis" the results of a definite method of treatment.

The University of Maryland a Sufferer by Fire.—On December 2d a disastrous fire visited the property of the university and completely destroyed Practice Hall. This building had recently been enlarged by the faculty. It had within its walls perhaps the best dissecting rooms and laboratories to be found in Baltimore. The old university building took fire, but fortunately the flames were extinguished before great damage was done. The losses are severe, but the buildings will without doubt be restored before another year comes round. The laboratory studies of the current term were not seriously interrupted, as the faculty was enabled to arrange for their continuance without delay.

THE HÆMOSTATIC VALUE OF PEROXIDE OF HYDROGEN.*

By GEORGE EMERSON BREWER, M.D.

It is only within the past five or six years that the attention of the medical profession has been directed toward the value of peroxide of hydrogen in surgery.

Since the publication by Dr. E. R. Squibb, of Brooklyn, of a paper in which he described the advantages of this fluid as a disinfecting and antiseptic agent, especially in diphtheria and other septic diseases of the upper air-passages, its value has become more generally appreciated and its use gradually more extended among those of the profession who have largely to deal with this class of diseases.

Regarding the hæmostatic action of this drug little has been said. Although it has been mentioned by several observers, and it has been generally accepted that, under certain circumstances, its use has often been accompanied by the evidences of feeble hæmostatic action, it has never been regarded as a reliable agent for this purpose.

On five or six occasions, however, during the past year, the use of peroxide of hydrogen in the hands of the writer has seemed to arrest hæmorrhages from nasal or throat operations which at the time proved quite annoying.

I will mention but two of these cases, as they will fairly represent all, and leave the members of the club to determine whether or no I am correct in attributing to the peroxide the virtue which resulted in the rapid relief:

CASE I.—A young lady, aged twenty-five years, applied for treatment of a catarrhal condition of the naso-pharynx accompanied by marked nasal obstruction.

Upon examination, a moderate-sized cartilaginous spur was found upon the anterior portion of the septum, projecting well into the cavity of the left nostril. After a certain amount of preliminary treatment this was removed by means of the nasal trephine. As the bleeding which followed seemed moderate, she was instructed to allow it to drop into a fixed basin arranged for the purpose. The bleeding, however, appeared to increase, and at the expiration of fifteen or twenty minutes no longer dropped, but seemed to flow in a minute stream. A plug of cotton wool was placed in the anterior nasal orifice, and the head tilted well forward in the hope that clotting would thereby be facilitated. This plug, however, was soon saturated, and seemed in no manner to arrest the flow of blood. A solution of aceto-tartrate of aluminum was next applied to the cut surface, but to no purpose. A firm cotton plug was then saturated with the solution, and considerable pressure exerted upon the wound, but without relief.

As the patient had then been bleeding about forty or fifty minutes, and was beginning to show evidences of loss of blood, an application of Monsel salt was made with marked pressure by forcing a conical cotton plug within the nostril. This seemed for a few minutes to arrest the flow of blood, but it soon found its way backward, and appeared in the mouth and right nostril.

As this method, in the experience of the writer, had never failed to arrest a similar hæmorrhage when the cut surface was accessible, it was thought that the pressure of the cotton could not be evenly adjusted; the plugging was therefore removed and the process repeated with even more care and with more

* Read before the Hospital Graduates' Club, October 26, 1898.

pressure. The hæmorrhage, however, in spite of this application, continued, and when it was finally demonstrated that no benefit was being derived, after an interval of from ten to fifteen minutes, everything was removed, the clots expelled, and the patient propped in a comfortable position and allowed to bleed without interference for several minutes, in the hope that the diminishing blood pressure would allow coagulation and result in the ultimate arrest of the hæmorrhage. This, however, did not occur, and as the patient (who, by the way, was throughout the entire operation most reasonable and free from nervous excitement) began to experience feelings of giddiness, became extremely pale and somewhat exhausted, preparations were made to plug the posterior nares. With a view to cleansing the nasal cavity before applying the posterior plug, I applied on a cotton swab a fifteen-volume solution of peroxide of hydrogen, and was pleased to note an immediate cessation of the hæmorrhage, which did not recur.

CASE II.—The patient, a man, aged thirty-two years, suffering from marked enlargement of the tonsils, was told that the removal of both glands would, in all probability, be followed by prompt relief. Accordingly, one was removed on May 26th by means of the Mackenzie amygdalotome. The wound promptly healed with but insignificant loss of blood. Five days later the other was removed in the same manner, and, as the resulting hæmorrhage was slight, the patient left the office for his home within three quarters of an hour from the operation.

As he had been accustomed to making applications to the throat for several years, and possessed a considerable amount of skill with the applicator, he was told, in the event of hæmorrhage, to apply strong peroxide of hydrogen to the bleeding surface. Three or four hours later I was hastily summoned to his house by the report that the bleeding had been considerable. As soon as I entered the patient's room it was clearly evident, from the blood-stained towels and utensils which were scattered about, that he had experienced a considerable loss of blood. The patient exhibited marked pallor and was extremely weak. The pulse was small and rapid.

On examining the throat, however, I saw a large, firm clot, and no evidences of present loss of blood. He explained to me that the hæmorrhage had started shortly after leaving the office, had gradually become more profuse, and was not controlled by applications of ice or by astringent sprays. As soon as he was able to procure the peroxide of hydrogen and arrange his lights and mirror, he had made the application as directed, and it had been followed by a prompt cessation of the bleeding. That the hæmorrhage had been extensive was evidenced by the fact that during my visit he vomited a large amount of clotted blood, and twice during the night which followed, when he attempted to rise from his bed, he fainted and fell to the floor. The hæmorrhage, however, did not recur.

As in several other instances in the writer's experience equally satisfactory results have followed the use of this agent under similar conditions, it has been thought advisable to call attention to its possible hemostatic action, and, although I am not prepared to say at present that the arrest of the hæmorrhage in any of the cases did not result from the lowering of the blood pressure, or from some other favoring circumstance, still it seems to me to be worthy of a more extended trial.

To explain the hæmostatic action of this drug, the theory has been suggested that the rapid clotting of the blood was due in great measure to the fact that the peroxide-of-hydrogen fluid when brought into contact with organic matter is rapidly decomposed, giving off free nascent oxy-

gen. This, by uniting with the hæmoglobin, converts the blood, which is generally venous in character and charged with carbon dioxide, into bright arterial blood, which it is well known is much more readily coagulable than the vitiated fluid.

I was, however, led to question the correctness of this theory when I observed that in some of my most alarming cases the bleeding was distinctly arterial in character, and that these cases seemed to yield to the treatment as readily as those in which the oozing was undoubtedly venous.

I am indebted to Dr. William G. Thompson, professor of physiology in the Medical Department of the University of the city of New York, for some facts which he observed during a series of experiments with this agent (as yet unpublished) which he has recently been conducting at the physiological laboratory of that institution.

He observed that when a strong solution of peroxide of hydrogen (fifteen volumes or more) was brought into contact with the blood by being directly injected into the veins during life, it caused a rapid disintegration of the red corpuscles, resulting in the immediate precipitation of a semisolid detritus which completely occluded the smaller vessels; that this effect extended so rapidly throughout the vascular system that within a comparatively short space of time the animal operated on would present the appearances characteristic of the most profound anæmia.

He also observed that the application of strong solutions of this agent to mucous and serous membranes caused an almost immediate degeneration of the epithelial cells, resembling at first a rapid and exaggerated cloudy swelling, and later a complete destruction of the tissue.

In view of these facts, the writer is inclined to believe that the arrest of hæmorrhage which is observed when strong peroxide of hydrogen is applied to a freshly wounded surface results from this remarkable disintegrating action both on the tissues and the blood, rather than the simple oxygenation and rapid coagulation of the latter, for it is easy to understand how the rapid swelling of the endothelial lining of the cut blood-vessels and the solidification of the blood within them would result in a more or less complete obliteration of their lumen.

REPORT OF SEVEN CASES OF TETANY.*

By BERNARD E. VAUGHAN, M.D.

TETANY is a disease quite common in some parts of Europe, but rare in this country. Osler, in his text-book, states that in the discussion of a case presented by Dr. Stewart at the Association of American Physicians at Washington, 1889, Dr. Weir Mitchell had seen but two cases and Dr. Pepper but one, and that in a child.

The disease is characterized by tonic spasms affecting the extremities. The ætiology is in doubt. Von Jaksch, who has described an epidemic among young men of the working classes, in some cases accompanied with slight fever, regards the disease as infectious; this form is acute

* Read before the Hospital Graduates' Club, April 20, 1893.

and rarely fatal. It often accompanies rickets, chronic diarrhoeas, the acute fevers, and lactation, and Trousseau has called it nurses' contracture. It has occurred in cases after the removal of the thyroid gland, and in dilatation of the stomach, particularly after lavage. In fact, the nature of the disease is unknown, but it probably depends upon the action of some toxic agent on the motor cells.

Symptoms.—In some cases there is fever; it has been reported as high as 104° F., but in mild cases the symptoms are chiefly those of tonic spasm of the extremities. The hand is drawn into a position suitable for holding a pen. Trousseau has described it as the "accoucheur hand." It is best understood if you remember the muscles supplied by the ulnar in the hand—namely, the *interossei*, two of the *lumbricales*, muscles of the little finger, and the adductor and part of the *flexor brevis pollicis*. Consequently you get flexion of the metacarpo-phalangeal joints and extension of the second and third phalanges; the inner side of the hand is drawn inward; the thumb is strongly adducted and flexed. The wrist is flexed, also the elbow, and the arms are drawn toward the chest. In the lower extremities the toes are flexed and the feet are in the position of talipes equinus. Rarely it extends to the muscles of the face and trunk. These contractions are intermittent or more or less persistent. Pressure on nerves produces the spasms, and there is increased electrical reaction of the muscles.

The diagnosis of the case is quite easy; it must be distinguished from hysteria and from trismus. The former is unilateral, while tetany is bilateral. In trismus the jaw is first affected, while in tetany it begins in the extremities. For treatment, bromides, baths, massage, and electricity have been used.

For the cases I have to report I am indebted to Dr. Ginnasi, physician to the afternoon Italian class of the New York Dispensary. Five of these cases occurred in one family, and it may be of interest if I describe briefly the place in which they lived:

It was a rear house, never receiving direct sunlight; four steps below the ground; ceiling about six feet and a half high; room eight by ten feet, with two small windows; in the rear, another room, five by eight feet, having no windows. On the other side were two similar rooms—and in this place lived two families of twelve persons.

CASE I.—V. M., aged thirty-five years, female, nursing child five months old. Three months ago began to have formications in feet, extending up the back, neck, and head, and then into the hands. In about a week she began to have contractions, limited to the upper extremities. She had some pain in the abdomen and constipation. The contractions would last about an hour, and occurred three or four times daily. This continued up to a few days ago, when she came to the dispensary. The position of the upper extremities was exactly as described. We put a pen in her hand and she would hold it indefinitely, and was not able to relax her grip. Eight grains of quinine, three times a day, were given, and the contractions were relieved in eighteen hours, but the muscles felt sore and painful. In a week from the last visit the patient returned to the dispensary with a relapse, but the contractions were not as typical or as persistent. The feet were slightly affected, which

interfered with walking. On the following day Dr. Walter Vought and I made careful tests of the electrical reactions of the muscles. They were all increased in both cathodal closing and anodal opening. In some cases the smallest amount of current that we could measure—namely, an eighth of a milliampère—was sufficient to produce distinct muscular contraction. In all cases the reaction occurred with half the amount of current required in a normal subject; also the anodal opening was greater than the anodal closing contraction.

CASE II.—M., aged fourteen years, daughter of V. M. Menstruation just established. She began to have contractions two weeks later than her mother, preceded by formications; were less severe, but more continuous, relaxation only occurring once or twice a week, when the patient could move her fingers for about two hours; then the contractions would recur. Position of hands and arms typical.

CASE III.—M. M., girl, aged three years. Began to have cramps in the upper extremities at the same time as her mother, but spasms have occurred only twice a week.

CASE IV.—N. M., aged twelve years. Has menstruated. Two months ago she began, as the others, with formications, cramps in stomach, and constipation; contractions in her case were very continuous. Position of upper extremities typical. Pressure on brachial plexus increased the contractions. Four grains of quinine, three times a day, were given; contractions disappeared in a few days. She complains of soreness in the muscles and pain in her tongue and left eye.

CASE V.—Aged thirty-three years, married, nursing a child two months old. Lives in opposite basement. Three weeks ago she began to feel formications in her feet, extending up the back to the head and then in the arms. Contractions began two days ago, when I saw her at the dispensary. Pressure on brachial plexus increased the contractions. Eight grains of quinine, three times a day, were prescribed. After sixteen grains had been taken the contractions ceased and have not returned. Pressure on the brachial plexus causes a feeling of formication in the arm. Both in this case and in Case IV the temperature was 100° F.

CASE VI.—Teresa, aged twenty-five years, married, two children, youngest eleven months old, nursing. Lives in a dark, damp basement. The patient is anemic and poorly nourished; looks very sick. Temperature, 104° F. Pulse, 108. Spleen slightly enlarged. Three days ago she began to have formications, beginning in the feet and extending as the others. Began four days ago to have contractions in the hands and came to the dispensary. Position not quite typical; could move the fingers. Pressure on the brachial plexus increased the spasms, which were more like the others. The following day I saw her at her home, and contractions had ceased after quinine. Temperature, 101° F.; pulse, 100. Pressure on brachial plexus caused pain.

CASE VII.—Vincenzo. Reported to me by Dr. Ginnasi. Works on docks. Had typical spasms in both hands and feet.

Besides these cases reported, quite a number have been treated in the New York Dispensary in the morning Italian class. It has seemed to me that such a rare disease ought to be reported, and I wish to call attention to these facts: That five in one family suffered with the disease; that three cases were in nursing women, two in girls who had just begun to menstruate, one in a rickety child, and one in a male adult working in a damp place, and all of these subjected to the worst possible hygienic surroundings. Then there was the rapid disappearance of the symptoms under

the influence of quinine, the use of which is not mentioned in the text-books. All these facts, I think, point toward the infectious character of the disease.

A CASE OF
COMPLETE GLOTTIC SPASM IN AN ADULT,
FOLLOWED BY
UNCONSCIOUSNESS AND PROLONGED DROWSINESS.*

By W. PEYRE PORCHER, M. D.,
CHARLESTON, S. C.

As I have been able to find records of only twenty-seven cases of laryngeal vertigo or complete glottic spasm in adults, and on account of marked implication of the brain centers, as shown by torpidity of bowels, persistent drowsiness, and other symptoms which are novel, at least to the writer, I have ventured to make the following brief report of this case:

The patient was a maiden lady, aged fifty-two years, at the menopause. She was brought to my office for the supposed removal of large tonsils on account of difficult respiration at night, with frequent terrifying nightmares. She attributed this condition to an attack of grippe which she had had several months before. Since that time the paroxysm had not been severe, but her attendants stated that she would be awakened by the cough after dropping to sleep, and it was described by her as a feeling of choking or gagging in the throat. There was no dyscrasia, except such as resulted from a slight malarial cachexia. She was of a very sanguineous temperament, inclined to plethora, and so nervous that she expressed the greatest alarm when requested to enter my dark room. She could not go into a church or other crowded place without a sense of fear and oppression.

On examination, her tonsils were found to be so small that they could not be caught in the grasp of either of two improved amygdalotomes. They were therefore thoroughly cauterized with the galvano-caustic knife.

She was ordered a simple antiseptic gargle of listerine and water, and cautioned against taking any hot food, coffee, etc.

The first night after the operation she had no great pain or unusual difficulty of breathing. The next morning she attempted to drink some coffee which she said was not hot. Upon taking the first teaspoonful she complained of a peculiar giddiness and rushed to the window for air, but fell back upon the floor unconscious. The attack lasted but a short time. On my arrival soon after, she had entirely regained consciousness and was comfortable. As her attendants stated that she was very drowsy, ten grains each of calomel and soda were ordered to be taken at once. At the evening visit it was found that the medicine had not acted, and the next morning there had been but one slight evacuation. This, together with the persistent drowsiness, which lasted for several weeks, indicated that there was marked implication of the brain centers, although there has been no return of the attacks of insensibility.

She was ordered sulphate of strychnine, a twentieth of a grain, with a grain each of quinine and iron. This dose was gradually increased until a tenth of a grain of strychnine was taken three times daily. Small doses of a saline cathartic were also given from time to time in order to keep the bowels open.

About thirteen days after the first cauterization, the left

tonsil remaining still somewhat enlarged, a second application of the galvanic electrode was made to it. This was followed by most satisfactory results. She informed me that her rest the night following had been very refreshing, without difficult respiration, pain, or nightmares.

The patient was kept under observation for about fifteen days longer. At the end of this time she expressed herself as having regained control of her nerves and considered herself well.

On account of the well-known tendency of hot coffee to enter the larynx, and for the reason that I know of no other exciting cause to which to attribute the sudden attack of insensibility, and as there were no signs of paralysis, I have been inclined to regard this as a case of laryngeal vertigo or complete glottic spasm, and have so entitled it. It might be thought that the vertigo was in some way due to the menopause, but this would not account either for the prolonged stupor or the torpidity of the bowels. Cases of laryngeal vertigo have been reported in which cough has either been absent or not of any great severity, and others in which the nervous element was most prominent, but in which there were no attacks of absolute insensibility, and again other cases in which very slight paroxysms of cough would be followed by complete unconsciousness. The insensibility with slight cough, as in this instance, is perhaps best explained by McBride's theory that the attack was preceded by a series of short inspirations followed by spasmodic expiration and a partially closed glottis. Here, also, the patient was not even aware that any coffee had actually entered the larynx, but was seized with a sudden gasping for breath, and, after rushing to the window, fell unconscious, as she said, "in a heap upon the floor." It is the opinion of the writer that this loss of consciousness, like aural vertigo, is a symptom of a specific disease, and should not be confused with that vertigo which results from holding the breath for a sufficient length of time, or even that which results from a severe paroxysm of cough or sneezing. It should not in any respect be regarded as an epilepsy, as there was never any spasm or jerking of any description at the incipency or at any time during the attack.

REMARKS ON
CONGENITAL DEFECTS OF THE FACE,
WITH EXHIBITION OF A RARE FORM OF CLEFT PALATE.*

By HARRISON ALLEN, M. D.,
PHILADELPHIA.

I HAVE here a skull, and in connection with it a drawing, which illustrates a rare form of congenital defect. The specimen is the skull of a Seminole Indian taken from the Morton Collection in the Philadelphia Academy of Natural Sciences. The collection is for the most part made for ethnological purposes, and this particular skull shows evidences of having been exposed to fire, which probably indicates a pre-Columbian burial rite.

The defect in the palate is directly in the median line.

* Read before the American Laryngological Association at its fifteenth annual congress.

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In other words, it is not the form of cleft palate which is generally described. The cleft palate which we know of from the books is the result of the failure in the descent of the fronto-nasal process to reach a level with the other bones of the face which are developing from the sides. There may either be one or two fissures, resulting in double or single cleft palate. The rudiments of the incisor teeth lie between the clefts. This specimen is so far different that on the right side there are distinct sockets for the incisors. On the left side the sockets for the incisors are absent. We have evidence that the cleft in the roof of the mouth itself is distinctly in the median line. On turning the specimen, so as to get a front view, it will be seen that the maxillæ descend unequally, the one on the left side being carried down further than the one on the right. There is a disproportion between the two sides of the face. It will also be seen that the septum is exceedingly irregular, one of the nasal chambers (namely, the left) being much narrowed. The septum is deflected in a remarkable manner, so as to form a gross deviation to the left.

The right nasal chamber is intact. The individual suffered only on the left side from the result of the cleft. Here is a large fissure opening from beneath, and the left nasal chamber is freely continuous with the mouth. It is evident, from the appearance of the teeth, which have been subjected to full use, that these peculiarities did not interfere with the individual's masticating powers. The spur formed by the union of the perpendicular plate of the ethmoid bone with the vomer is deflected so far to the left that it has formed an adventitious depression for its reception in the left middle turbinal bone. I wish to dwell upon this point, for I have long been of the opinion that many forms of nasal headache, catarrh, and distress are due to similar pressure effects. I know that some of the fellows of this association do not accept this thesis, but I think that a study of the specimen will help strengthen the position I have taken. It is difficult to see how this spur could avoid making sufficient pressure on the turbinated bone to excite distress. This is certainly true of patients who have an irritable nervous system, and it might have been true here. In my experience, when the middle turbinated bone is cauterized, particularly on the side, it creates a hygroscopic eschar which becomes thick the day after the operation and produces headaches. These are relieved only on the removal of the eschar.

When the subject of the ætiology of deviations of the nasal septum was first studied they were attributed almost entirely to injuries. I remember when I first read a communication on this subject before the Philadelphia Medical Society, there was no one present who agreed with me that such deviations were due to other causes than traumatism. It is difficult to prove that they are not due to traumatism, because few children escape blows on the face. The history of a blow is all that is needed. I acknowledge that it is exceedingly difficult to make the contrary proposition good, but I have been inclined of late years (perhaps because my experience with these cases has been an exceptional one) to the opinion that deviations of the nasal septum are very rarely traumatic; that they are almost

always congenital and, like most congenital conditions, are associated with a disposition to minor defects in more than a single direction. Ordinarily, indeed, the entire region of the face, including the superimposed frontal bone and the roof of the mouth, exhibits peculiarities which correlate with nasal conditions. I endeavored to establish this proposition many years ago, but practitioners are indifferent to data of this kind.

Examining the specimen for details, we find that the middle turbinated bone is of enormous size on the right side, while on the left side it is a mere wafer-like scale. These bones show no evidence of being peculiar from behind, while in front they present marked asymmetry. This illustrates the law that all structures grow in the line of least resistance.

TWO CASES OF SUPERNUMERARY NIPPLES, WITH REMARKS.

By L. E. DIONNE, M. D.,
NORTH BROOKFIELD, MASS.

THE case of supernumerary nipple reported by Dr. Albert Pick in the *New York Medical Journal*, October 28th, reminds me of two cases observed in my own practice.

L. J., a well-developed German girl, presented a nipple in the right axilla.

S. D., a delicate woman, aged twenty-two years, was the bearer of a nipple situated about two inches and a half to the right of the right normal nipple. S. D. gave birth to a perfect child. Lactal secretion in normal nipples only.

Regarding the significance of that phenomenon, Darwin concludes that, "on the whole, we may well doubt if additional mammae would ever have been developed in both sexes of mankind had not their early progenitors been provided with more than a single pair."

Professor Leichtenstern says: "With Darwin we explain the accessory mammae and mamillae in man to be a reaction in the course of the evolution of man, standing in relation to our enormously distant ancestors of lower organization, who had more than two mammae, and adjudge every human being the latent capability or inclination to produce more than two breasts. This inclination, resting upon inheritance from our ancestors, has, however, been reduced, in the course of millions of years, to latency, but not to such a degree as has been generally assumed, as it has been proved that accessory and rudimentary mammae and mamillae occur much more frequently than has been formerly thought."

The views of the learned professor are particularly misleading, as they are said to be based upon modern embryology, and, like all other theories having a scientific aspect, have been accepted by many as ultima.

Fortunately for our peace of mind, they will not bear the force of careful observation and sound judgment.

From careful examination of the records of cases of accessory mammae and mamillae we learn that extra nipples are as accidental in their position as they are in their occurrence, that they do not occur more frequently than the other deformities found in the human race, and that

consequently they can not be of any greater significance than a simple malformation.

If it were reasonable to infer from their presence, would it not be as wise to infer from their site? Again, would it not be equally just to draw inference from other anomalies—accessory fingers, ear, etc.? Hence the absurd possibility of having for “enormously distant ancestors” beings with mammary glands and nipples in the axilla and having double hands ornamented by triple thumbs.

The lower animals give examples of monstrosity which are just as good material for inference as the deformations met with in both sexes of mankind. Who has not been urged to give a dime to see a two-headed calf, a hairless horse, etc.?

I remember seeing a four-year-old cow which had a foot on the middle of the back, and a horn about five inches long aside of it. It never occurred to my mind that that cow's great-grandmother was one of that kind.

The presence of an extra part of an animal body can not bear more significance than the absence of a normal part. Both conditions are monstrosities—the former monstrosities by excess (*monstra abundantia*), and the latter monstrosities by defect (*monstra deficientia*).

The cause of accessory nipples, etc., might be to science, as well as to supposition, a puzzling puzzle did we not remember the admirable work of the cellular system of our organization; but when we consider the behavior of these minute organisms, the cells, which are indefatigably laboring at the construction and repair of our body, have we not good right to look upon deformation (by excess) as the production of a bundle of wandering cells which, though exiled from their congeners, nevertheless accomplish their wonderful constructive object?

Notwithstanding modern embryology and other ologies, which often tend to debase the primary origin of mankind, we can not consider the morbid alteration of a given being as a *rapprochement* to his remote progenitors.

The scriptural genesis of man implies that we are of Adam and that Adam was of God. It is certainly safer and more important to believe that than to plunge into a doubtful past “millions of years” of which we have no history for the purpose of establishing relationship with a four-footed something having a full row of mammae on each side of the median line and acquiring the “latent capability or inclination” of transmitting the same to future generations, with the addition of a caudal appendix, as atavism may decree.

Who will dare to reflect upon the physical and intellectual superiority of man over all beings and say that he is not what he was intended to be on the morning of creation—the *chef-d'œuvre* of the Divine Architect—for “*quod est ultimum in actu est primum in conceptu*”?

A Serious Hospital Fire in Syracuse.—The Woman's and Child's Hospital, of Syracuse, took fire on December 18th from a defective flue. The patients were all got out in safety, but not without grave peril, since the weather was very cold at the time of their removal. The fire damaged the building to the extent of nearly \$4,000. A large proportion of the furnishings of the hospital were saved. The losses are well covered by insurance.

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THE GROWING POPULARITY OF ETHER ANÆSTHESIA IN LONDON.

THE *Medical Press and Circular* has had a series of reports on the anæsthetic procedures in several hospitals of London. King's College Hospital and the Royal Free Hospital are not free users of ether; the former relies on chloroform in a majority of cases, while the latter is partial to the A. C. E. mixture. In the case of nine other hospitals, the anæsthetists administer ether in the larger proportion of cases. At the London Hospital a very notable change has taken place in this regard; ether is the anæsthetic chiefly used, being administered twice as frequently as chloroform. A few years ago the opposite preference ruled, but a careful and extensive study of the relative workings of the two substances has effected this reversal. The anæsthetist of St. George's Hospital shuns the use of chloroform “unless there is some good and sufficient reason to give the coroner in case of a catastrophe,” although he considers the substance safe in the hands of a competent operator. Ether is by far the most popular anæsthetic at the Charing Cross Hospital, being used in seventy per cent. of the cases. Chloroform has the preference in operations upon the mouth, tongue, etc., or where the use of ether is contraindicated by the existence of some pulmonary complication. Dr. Hewitt, at the London Hospital, prefers chloroform in cases where bronchitis or emphysema exists, and a majority of the anæsthetists use it for children, elderly persons, and those who have bronchial trouble. Dr. Bourns, of the Westminster Hospital, however, does not refrain from the use of ether for old persons, since he thinks that apprehension with regard to the ill effects of ether in age has been excessive, and that when lung disease has followed etherization it is more likely to have been caused by some exposure of the chest or some faulty step in the operation than to have been excited by the vapor of ether. Nearly all the outpatient departments use nitrous oxide, and so do the anæsthetists of the hospitals when minor operations are performed. In some of the hospitals that substance is also used to induce a condition preliminary to full anæsthesia, the experience being that less ether is needed and a quieter and prompter sleep is obtained than when ether is used from the outset. In some cases chloroform is substituted for ether, if the patient under ether evinces a tendency to vomiting or bronchial irritation; after the ether has been withheld for a while it may be administered again. At St. Mary's Hospital ether is used first in patients that are badly nourished and run down from excesses; when the period of excitement has been reached chloroform is given instead of ether; afterward, when the patient is quiet and breathing regularly, the use of ether may be resumed.

The A. C. E. mixture mentioned above, although it has a London origin, has a better reputation in the United States than abroad. The proportions of the mixture are, by measure, alcohol one part, chloroform two parts, and ether three parts, its constituents to be of the best quality. This combination was used by Dr. Harley for several years in a quiet way, but in 1864 a committee of the Royal Medico-chirurgical Society gave it prominent mention in their report on anæsthetics.

The majority of London anæsthetists are particular to use the ether in as fresh a condition as possible, and preference is given to the use of an inhaler. The Clover inhaler is largely used, though Ormsby's and Junker's have their adherents. Apparently much less ether is used for a patient in London than for one in our own hospitals.

THE NEW YORK STATE LUNACY COMMISSION.

For some time there has been apprehension lest the Lunacy Commissioners of this State should fall from the grace and honor of their office by undue exercise of the despotic power with which they have been invested by the Legislature, and by the insatiable desire and greed for more power begotten of the privileges already given them. No particular fault is found with the commissioners themselves, except that they do not stand upon the same plane as some of their predecessors, like Ordranax, who administered the functions of the office in such a way as to bring distinction to himself and glory to the Commonwealth.

The object of the creation of such an office as that of commissioner in lunacy was to provide for the regular inspection of public and private asylums for the insane. In England the need for such an officer originally arose in connection with the abuses of private asylums, to which occasionally sane persons were sent, and in which at times patients were unduly detained and restrained. Such a government inspector should see the patients, talk with those that have complaints to make, investigate charges of abuse, diminish mechanical restraint, and note whether inmates are properly fed, clothed, and exercised. He should aid and abet in every way the asylum superintendent's natural desire to improve the institution under his care, and to ameliorate the condition of the unfortunates committed to his charge. Beyond such duties and the minor details pertaining to the same, the Commission in Lunacy should have no other prerogatives, and indeed we doubt if a properly constituted commission would desire more.

The evils which are now arousing a storm of protest in the daily papers all over the State and in some of the medical journals are wholly due to the extraordinary powers granted to the present commission, and to the meddlesome and oppressive manner in which such powers are wielded. As is well known, the hospitals for the insane of this State are foremost among institutions of the kind in this country. Their superintendents are medical men pre-eminent in their special calling, understanding more clearly the needs of the asylums and better able to provide for the welfare and happiness of their charges than

the commissioners. In addition to a medical superintendent and his corps of medical assistants, each asylum has a board of managers selected from among the best citizens in every part of the State, whose duty it is to co-operate with the superintendent in managing all the affairs of the institution. These citizens are gentlemen of high standing in their respective communities, and fortunately, owing to the time-honored custom of their being appointed by Governor without party distinction, few if any of them are politicians. It is needless to say that the State hospitals for the insane, as thus constituted, have been in all respects creditably managed, and no meddlesome interference in the management should ever have been permitted. As already intimated, such interference has been instituted by the commissioners in lunacy, apparently to gratify an insatiable ambition, and the tendency seems to be toward the creation of a huge political machine at Albany having control of all the purchases of supplies, of appropriations for new buildings, and after a time of the appointment of superintendents, stewards, medical assistants, nurses, and attendants. The commission has already absolute authority as regards each minute expenditure in every asylum of the State, so that not even a lead pencil can be purchased without the consent of this centralized body. The cutting down of necessary appropriations for blankets, clothing, fuel, food, tobacco, and the like has been the immediate cause of the indignation everywhere aroused. Now, instead of a commission to look to the welfare of the insane, we have a body whose only purpose apparently is to make political capital out of the cry of economy. The tendency is down hill. It is toward demoralization of the whole scheme of State charity. It is against the interests of the insane. It will place the State care of the insane on the so-called "economical" level of the County House.

While we have nothing personal against any member of the present commission, we believe that the inherent human instinct to grasp for more power, manifested so decidedly in this instance, should be curbed. We believe the law should be so changed as not to stimulate and develop this instinct. The Massachusetts people are congratulating themselves at the present moment that the same plan for centralizing power as to details of management of State hospitals was overwhelmingly defeated in their legislature, and are commiserating us on account of the mode of enforcement of bad law, which enforcement is worse than the law itself. Every reform and improvement in the care of the insane in this State has had its inception in the State Board of Charities, the State Charities Aid Association, and former commissioners in lunacy. Much that the present commission has undertaken has been for the purpose of self-aggrandizement and to serve political interests. It is rather obstructive of legislation, looking toward the real interests of the afflicted people whom they were originally intended to protect. It has been said that the true reason of the veto of the epileptic-colony bill last winter was the influence of the Commissioner in Lunacy upon the Governor, for the law establishing said colony placed it in the charge of the State Board of Charities, and not in the hands of a body itching for

further extension of its executive powers in the State. We sincerely trust that a legislative remedy will soon be sought for this state of things, and that the Commission in Lunacy will hereafter be charged only with its legitimate supervising and advisory functions.

MINOR PARAGRAPHS.

THE NEW JERSEY MOSQUITO IN LONDON.

ACCORDING to *Insect Life*, the scientific periodicals of this country have omitted to notice the fact that the genuine mosquito from the Hackensack flats finds its way to England, although the newspapers have occasionally made mention of the fact. The above-named journal states that it can confirm the rumor. It says: "A large and voracious species of *Culex*, indistinguishable casually from the species common about New York harbor, is to be found in London, and is not infrequent in the large hotels. They were particularly bad in 1886 at the Grosvenor Hotel, Victoria Station, and proved even more annoying to the Londoner than to the many American guests of the hotel. These insects are undoubtedly being carried over occasionally in the large ocean steamers, and the gradual reduction in the length of time of the voyage will undoubtedly result in an increase of such instances. A recent number of the *London Spectator* mentions the fact that in a large colliery in the north of England the men at work in a distant part of the mine complained that the galleries were full of mosquitoes. As ordinarily it takes something worse than a mosquito to frighten a collier, the manager went down to explore, and found large yellow-banded wasps in great abundance."

TOBACCO AND THE DIPLOCOCCUS PNEUMONIE.

TOBACCO, under certain conditions, seems to be antagonistic to the coccus of pneumonia. Dr. Welch has shown at the laboratory of the Johns Hopkins Hospital, says the *Journal of the American Medical Association*, that the action of tobacco smoke on bacteria, as the smoke is drawn through the culture tube, is inhibitory. There was formerly a medical worker in his laboratory who had always in his buccal secretions the *Diplococcus pneumoniae*, and who was able to supply the other workers with samples for cultures. But after a time this physician began to chew tobacco, and no more cultures could be got from his saliva, for the tobacco had exterminated the micro-organism.

A MECHANICAL MEANS OF TREATING WHOOPING-COUGH, TRIGEMINAL NEURALGIA, ETC.

THE *Centralblatt für klinische Medizin* for December 9th mentions an expedient described by Dr. Naegely, in the *Mercure médical*, 1893, No. 31, for cutting short the paroxysms of whooping-cough and for the treatment of trigeminal neuralgia, hemicrania, globus hystericus, and nervous vomiting. It consists in seizing the two greater cornua of the hyoid bone with both thumbs and holding the bone, together with the larynx, up for from sixty to ninety seconds. The efficacy of this manipulation is said to have been proved in a sufficient number of cases. The author can not explain its *modus operandi*, but he is inclined to think that it calls an inhibitory reflex into play.

QUOUSQUE TANDEM?

Is there any limit to the effrontery of the "enterprising" pharmaceutical manufacturers? Certainly in the case of some of them there does not seem to be. The latest example of vul-

gar assurance on their part is the issue of a hideous calendar, every sheet of which bears an assertion of the superiority of a certain product, surmounted by the portrait of some well-known physician. It is to be presumed that most of these portraits, if not all of them, are put to this low use without the consent of the persons they represent, and probably without the formality of their having been consulted in the matter. At all events, we are glad to have been assured by one of the gentlemen on whom this indignity has been put that he has taken legal proceedings against the offending concern.

THE TREATMENT OF MALARIAL DISEASE IN CHILDREN.

In the *Revue générale de clinique et de thérapeutique* for December 2d brief mention is made of a book on new methods of treating malarial fever in children, by Dr. Moncorvo, of Rio de Janeiro. It seems that the author, in imitation of Maninoff, has tried a tincture of the leaves and flowers of *Helianthus annuus* with good results. He has used methylene-blue also, but it is not easy to estimate the degree of his success with this drug, for the amazing statement is made in the *Revue's* abstract that thirty-six patients were treated, of whom ten were cured and thirty-nine benefited! It is much to be regretted that errors of this sort are very common in the periodical literature of medicine.

THE GAZETTE MÉDICALE DE PARIS.

THE issue of the *Gazette* for December 2d presents an improved typographical appearance, and it is announced that Dr. Pierre Sebilean succeeds Dr. F. de Ranse as the editor. The new editor states that the last page of each number will be devoted to matters of special interest to students who intend to try the *concours* for the *internat*, such as knotty questions in anatomy, physiology, and pathology that may be asked by the examiners. In the number before us nearly two pages are given up to such a treatment of the anatomy and physiology of the velum palati.

ITEMS, ETC.

Army Intelligence.—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 10 to December 16, 1893:

KULP, JOHN S., First Lieutenant and Assistant Surgeon, now on temporary duty at Jackson Park, Chicago, Ill., is relieved from further duty at Columbus Barracks, Ohio, and when his services are no longer needed with the troops at Jackson Park will report in person to the commanding officer, Fort Sheridan, Illinois, for duty at that post.

BREWER, MADISON M., First Lieutenant and Assistant Surgeon, having relinquished the unexpired portion of his sick leave of absence, will report in person to the commanding officer, Fort Monroe, Virginia, for temporary duty at that post.

GIBARD, ALFRED C., Major and Surgeon, is granted leave of absence for four months, to take effect about January 6, 1894, with permission to go beyond sea.

Naval Intelligence.—Official List of Changes in the Medical Corps of the United States Navy for the week ending December 16, 1893:

SIEGFRIED, C. A., Surgeon. Detached from the U. S. Training-ship Richmond and granted four months' leave.

HAWKE, J. A., Surgeon. Detached from Widows Island Hospital and ordered to special duty at Portsmouth, N. H., and to the U. S. Training-ship Richmond.

SIMONS, M. H., Surgeon. Ordered to Widows Island Hospital and to special duty at Portsmouth, N. H.

DEAN, R. C., Medical Director. Ordered as President of the Board of Medical Examiners, Washington, D. C.

HOEHLING, A. A., Medical Director. Detached from the Board of Medical Examiners and to wait orders.

BRADLEY, MICHAEL, Medical Director. Relieved as President of the Board of Medical Examiners and ordered as member of the board.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Four Weeks ending December 16, 1893:*

BAILHACHE, P. H., Surgeon. Granted leave of absence for five days. November 28, 1893. To inspect quarantine ports. December 7, 1893.

PURVIANCE, GEORGE, Surgeon. To inspect quarantine ports. December 7, 1893.

SAWTELLE, H. W., Surgeon. To inspect quarantine ports. December 7, 1893. Granted leave of absence for three days. December 4, 1893.

AUSTIN, H. W., Surgeon. Detailed as chairman of the board to amend and revise quarantine regulations. December 9, 1893.

GASSAWAY, J. M., Surgeon. To proceed to Mobile, Ala., as inspector. November 22, 1893. To inspect quarantine ports. December 7, 1893.

MEAD, F. W., Surgeon. Detailed as chairman of the board to examine candidates, Revenue-Marine Service. December 9, 1893.

CAETER, H. R., Surgeon. To proceed to Brunswick, Ga., for temporary duty. November 29, 1893. To inspect quarantine ports. December 7, 1893. Detailed as member of the board to revise and amend quarantine regulations. December 9, 1893.

WHEELER, W. A., Surgeon. Detailed as member of the board to revise and amend quarantine regulations. December 9, 1893.

BANKS, C. E., Passed Assistant Surgeon. Granted leave of absence for seven days. November 22, 1893.

CARMICHAEL, D. A., Passed Assistant Surgeon. To inspect quarantine ports. December 7, 1893.

WHITE, J. H., Passed Assistant Surgeon. To proceed to Savannah, Ga., for duty. December 4, 1893. Detailed as member of the board to revise and amend quarantine regulations. December 9, 1893.

CARRINGTON, P. M., Passed Assistant Surgeon. To proceed to Baltimore, Md., for duty. December 9, 1893.

WILLIAMS, L. L., Passed Assistant Surgeon. To proceed to Charleston, S. C., for duty. December 4, 1893.

PETTUS, W. J., Passed Assistant Surgeon. Granted leave of absence for eleven days. To proceed to Buffalo, N. Y., for duty. December 4, 1893.

KINTOUN, J. J., Passed Assistant Surgeon. To rejoin station, Washington, D. C. November 24, 1893. Granted leave of absence for three days. December 4, 1893. Detailed as recorder of the board to revise and amend quarantine regulations. December 9, 1893.

WOODWARD, R. M., Passed Assistant Surgeon. Granted leave of absence for seven days. To proceed to Cairo, Ill., for duty. December 4, 1893.

VAUGHAN, G. T., Passed Assistant Surgeon. Detailed as recorder of the board for the physical examination of candidates, Revenue-Marine Service. December 9, 1893.

COBB, J. O., Passed Assistant Surgeon. To inspect quarantine ports. December 7, 1893.

GUITÉRAS, G. M., Passed Assistant Surgeon. To report at bureau for temporary duty. December 6, 1893.

GEDDINGS, H. D., Passed Assistant Surgeon. To proceed to New York for duty. December 2, 1893.

YOUNG, G. B., Assistant Surgeon. To proceed to New York for duty. December 4, 1893.

STIMPSON, W. G., Assistant Surgeon. To proceed to Detroit, Mich. December 4, 1893.

BROWN, B. W., Assistant Surgeon. Granted leave of absence for seven days. To proceed to Washington, D. C. December 4, 1893.

HOUGHTON, E. R., Assistant Surgeon. To proceed to Vineyard Haven, Mass., for duty. December 4, 1893.

ROSENAT, M. J., Assistant Surgeon. To proceed to St. Louis Mo., for duty. December 4, 1893.

NYDEGGER, J. A., Assistant Surgeon. Granted leave of absence for seven days. To rejoin station, Pittsburgh, Pa. December 7, 1893.

STEWART, W. J., Assistant Surgeon. Granted leave of absence for fourteen days. November 27, 1893.

STRAYER, EDGAR, Assistant Surgeon. Granted leave of absence for seven days. November 27, 1893.

OAKLEY, J. H., Assistant Surgeon. To proceed to Halifax, Nova Scotia, for temporary duty. November 24, 1893. To proceed to New York for temporary duty. December 14, 1893. To proceed to San Francisco, Cal., for duty. December 16, 1893.

Society Meetings for the Coming Week:

MONDAY, *December 25th*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *December 26th*: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Medical Society of the County of Lewis (quarterly), N. Y.; Buffalo Obstetrical Society.

WEDNESDAY, *December 27th*: American Microscopical Society of the City of New York; New York Pathological Society; New York Surgical Society; Metropolitan Medical Society (private); Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society.

THURSDAY, *December 28th*: New York Academy of Medicine (Section in Obstetrics and Gynecology); New York Orthopaedic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); Pathological Society of Philadelphia.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Meeting of December 5, 1893.

The President, DR. M. ALLEN STARR, in the Chair.

Scleroderma.—Dr. L. STIEGLITZ presented a man, aged twenty-four years, who three years before had become affected with a swelling in the right submaxillary region. This had disappeared in about three weeks and had been replaced by atrophic tissue, and scleroderma had developed. About six months before the meeting the patient had begun to suffer from spasmodic contractions of the right masseter and platysma muscles, which still continued. The speaker did not believe

that the scleroderma and the spasmodic muscular contractions had been due to a common cause, although that was possible. He was rather inclined to think that the contractions were due to reflex irritation.

Gliosarcoma of the Basal Ganglia.—Dr. FREDERICK PETERSON presented a specimen from a man, aged fifty years, who had been in excellent health, with the exception of occasional attacks of vertigo and slight headache, until June 8, 1893, when he had fallen to the floor in his office. He had had a general convulsion and had been unconscious for ten hours. At the end of two weeks he had been well enough to return to his office from his home in New Jersey and to continue at work for five days, when headache and malaise had kept him at home. Four weeks after his first convulsion he had had five or six more of short duration and rather left-sided in character. At this time there had been left hemiparesis and hemianesthesia, also left hemianopsia with a tendency to somnolence; the pupils were equal and small; he was sometimes delirious, and had great frontal headache. His pulse was from fifty-two to sixty a minute; the respirations were slow and there was slight optic neuritis. The diagnosis of sarcoma or glioma, situated deep in the brain so as to affect the posterior limb of the right internal capsule, had been made. An operation had been out of the question. The man had been unconscious during the last three days of life. At the autopsy, made just five months after the first apparent onset of symptoms, a gliosarcoma had been found, about two inches in diameter, occupying the region of the basal ganglia, especially posteriorly, and projecting upward into the right lateral ventricle and downward somewhat into the right crus. It had not been strictly demarcated, and there had been some infiltration into the white matter of the brain, with here and there areas of softened brain tissue. A secondary tumor of the size of an almond had been found attached to the dura on the right side, compressing the cortex in the region of the angular gyrus.

Infantile Cerebral Spastic Diplegia.—Dr. PETERSON presented also the fresh brain of a female infant, aged twenty months, that had had congenital diplegia (spastic paralysis of all four extremities). The child had been subject to convulsions, and had enormously exaggerated knee-jerks and ankle clonus. Its head had been exceedingly small. At the autopsy the skull bones had been found to be considerably thickened and all the sutures and fontanelles closed and united. The dura was very thick. There was no increased amount of subdural fluid. Over each hemisphere a large group of convolutions, including especially the motor area, had been found wanting. The vacuum caused by this atrophy had been filled partly by subdural fluid and partly by the bulging of each ventricle; there had been no internal hydrocephalus and no communication between the ventricles and the exterior of the hemispheres. A microscopical examination of the spinal cord had shown degeneration and atrophy in the lateral columns.

Chronic Hydrocephalus without a Cerebrum.—This specimen also was presented by Dr. PETERSON. The case had been one of a female infant, aged eighteen months. Little could be learned of its early history. It had had a large head with widely gaping fontanelles. The child had been blind and had had nystagmus. There had been rigidity of all four extremities, occasional convulsions (the convulsions, Dr. Peterson said, he had not personally observed), and toward the last opisthotonus. The child had often cried out at night. Speaking to it or moving it had caused it to cry out. The pulse had been rapid and feeble. The lungs had been normal. The urine had contained a trace of albumin, but there had been no trouble with the bladder or rectal sphincters. The child could not nurse and had been fed with a dropper. It had died suddenly

in a convulsion. The temperature had never risen above 98° F. while the child had been under observation. Toward the last it had vomited occasionally after being fed. At the autopsy sixty-four ounces of reddish serum had first been removed by tapping at the anterior fontanelle. The skull was very thin, also the dura. The falx cerebri had disappeared. At the base of the brain there stood out prominently the basal ganglia and the floors of the lateral ventricles widely open. The cerebellum had appeared to be of normal size. There had been a mere vestige of each hemisphere. There had been degeneration and atrophy of the lateral columns of the cord.

Subacute Unilateral Bulbar Palsy.—Dr. ALFRED WIENER reported the case of a lad aged seventeen years. His family history had been negative with respect to any hereditary nervous trouble. He had always been in good health up to two years before, when he had been taken down with an attack of perityphlitis, from which he had recovered after five weeks of illness. In the spring of 1891 the glands on both sides of his neck, in the region of the sterno-cleido-mastoid muscles, had begun to enlarge. In the summer of the following year an abscess had formed in one of these glands and had had to be opened. In August, 1892, the glands on the right side, together with a large portion of the sterno-cleido-mastoid muscle, had been excised. Those on the left side had been removed the following month and had been found to be of a tubercular nature. The patient had recovered rapidly and nothing had been noticed in the way of any disturbance of the parts which might have been involved in the operation. In November, 1892, it had been discovered that the patient's tongue deviated to the right side, and shortly after this he had experienced some difficulty in swallowing. He had soon become hoarse and coughed with difficulty, and within a space of ten days there had developed a complete unilateral palsy of the right side of his tongue, the soft palate, the pharynx, and the right recurrent laryngeal nerve. There had been no disturbance of his respiratory or cardiac organs, and no other conditions present which would have called attention to an affection of any other cranial or spinal nerves, except the ninth, tenth, eleventh, and twelfth. The symptoms had remained stationary for a time; then the patient had begun to grow very much weaker, and suddenly, on March 26, 1893, had had an attack of respiratory failure. From this he had partially recovered, and then had continued in a condition of slight respiratory difficulty. He had been hardly able to speak above a whisper, and had had excessive salivation. On April 11th he could barely protrude his tongue beyond the edge of his teeth. His lips had remained normal and could be brought into perfect apposition. The palate and pharynx on the left side had remained normal. On April 20th he had had another attack of respiratory failure which had proved fatal.

The autopsy, made six hours after death, had revealed that the motor cortex, internal capsule, crura cerebri, and pons were normal. The nucleus of the twelfth nerve on the right side was much diseased, while on the left side it was diseased to a slight degree. The nuclei of the ninth, tenth, and eleventh nerves were slightly affected, a little more on the right side than on the left. The respiratory bundle appeared to be completely degenerated on the right side, while on the left, in the region of the hypoglossal nucleus, its lower and anterior portions were diseased. In the region of the ninth nerve a few fibers were affected. The intramedullary remains of the ninth, vagus, the vago-accessorius, and the hypoglossal nerves were less prominent on the right side than on the left. Otherwise everything had appeared to be perfectly normal up to the exit of the first cervical nerve in the spinal cord. As regarded the nature of the lesion, no tubercle had been found, as had been expected,

and no tubercle bacilli had been found on microscopical examination. There had been simply an atrophy of the ganglion cells and fibers motor in function.

From a careful consideration of the preceding case and the autopsy, Dr. Wiener had drawn the following conclusions:

1. The region of the hypoglossal nucleus gives origin to nerve fibers which supply the tongue, palate, pharynx, and larynx on one side of the body.

2. The column of nerve fibers known as the respiratory bundle consists of fibers from the glosso-pharyngeal, vagus, and vago-accessorius nerves, and the lower and anterior portion of this column probably serves as the locality for the vagus and vago-accessorius fibers.

3. The glosso-pharyngeal nerve seems to control the reflexes of nausea and gagging in the soft palate and pharynx, and also to send some of the motor filaments to the pharyngeal muscles. These latter filaments have their origin in the hypoglossal nucleus, ascend in the respiratory column to the nucleus proper, and then make their exit with the glosso-pharyngeal nerve.

4. The soft-palate muscles are not innervated by fibers from the seventh nerve.

The Pons-medulla Flocculus Triangle as a Tumor Site, with Pathological Findings.—Dr. ROBERT SAFFORD NEWTON

read a paper on this subject, which he illustrated by the following case: A woman, aged twenty-eight years, had entered St. Mary's Hospital on July 10, 1893, complaining of a constant headache for a fortnight, with morning vomiting and sickness for seven days. There had been no history of any trauma and no specific history. The family history had been negative. Two days after admission she had been examined, and, apart from "a silly manner and a slight drawing in her speech, she had presented no symptoms. On July 20th the patient had become weak and had fallen to the floor. She had muttered to herself during the night and moaned about her head. The pain had appeared to be diffuse. She had been dull and stupid and her speech had been prolonged and tedious. At this time there had been no defect of the cranial nerves. The pulse was forty-five a minute. She had a shuffling walk, with some tendency to go to the right. The superficial reflexes were present and the knee-jerk was increased on the right side. On July 22d the patient had become quite deaf and the headache was very violent, keeping her awake. On July 24th she had become very feeble, with marked deafness, especially in the left ear, but there had been no tenderness or discharge. The patient had stated that she could not see well, but the ophthalmoscope had shown no marked lesions. Upon standing up, she had been projected to the right very forcibly. The movement at each trial had been accompanied by a look of fear, paling of the face, dilatation of the pupils, and bathing of the surface in cold perspiration.

From that time on the patient had failed rapidly; The sight had become worse, and she had grown petulant and childish, but her appetite had remained fairly good. Nystagmus had been present for one day only. The external rectus had also been temporarily affected, and she had had a transient facial tic. The sense of smell had been present to the last. Optic neuritis had first appeared in the right eye, then in the left, and had rapidly gone on to total blindness. She had also become totally deaf. Her sense of taste was not appreciably affected, although she had occasionally complained of a hot, scalding feeling in the back of the tongue and in the palate. Her pulse had been slow from the beginning, and toward the last it had dropped to as low as ten, twelve, and fourteen beats a minute, and three days before her death it had dropped to six beats a minute. There had been no anæsthesia or implication of the

pain sense, temperature sense, tactile sense, or muscular sense. She had never had any convulsive seizures or paralytic attacks. The weakness had steadily progressed and there had been loss of control of the sphincters; the respirations had become slow and gradually ceased. Just before her death she had still been able to distinguish between whisky and milk.

The autopsy had been made ten hours after death. Upon removing the brain an enormous tumor with a central projection had been found on the left side. The swelling was somewhat triangular, and its apex was under the thalamus and geniculate body, its base crowding the cerebellum off from the medulla, and its side line not quite reaching the middle of the pons. In the central pons region there was a projecting mass shaped like a thumb. The bulk of the growth was a cyst. The left half of the pons was much softened and the medulla and cerebellum were flattened. The olfactory nerve was intact. The optic nerve was swollen on the left side, but the third and fourth nerves were intact. The fifth and sixth also seemed to have remained unchanged. The seventh nerve was on one side of the growth and the eighth on the other. The nuclei of the ninth, tenth, and eleventh nerves had been pushed aside by the change in position of the floor of the medulla. The nucleus of the twelfth nerve had been entangled in the growth. The cyst had begun at the margin of the fourth ventricle by a blocking of the channel of communication between the lateral cisternæ of the ventricle and the cavity of the arachnoid.

In concluding his paper Dr. Newton referred to the natural spaces or reservoirs of the subarachnoid fluid that existed in this portion of the brain, and to how easily a cystic growth might be developed there, also to what an enormous size it might attain and what numerous tissues and parts might be invaded without necessarily giving rise to any localizing symptoms.

Myelosyringosis; Central Glioma of the Spinal Cord, with Spontaneous Central Hæmorrhage.—Dr. CHARLES L. DANA

read a paper in which he narrated the history of the following case: The patient had been a man who had had a central gliomatous tumor in the lower part of the dorsal region of the spinal cord. This tumor had progressed slowly for two or three years, causing during that time the symptoms of a transverse myelitis chiefly, although the presence of a spinal tumor had been suspected. Among other symptoms there had been anæsthesia of the right side extending up to the twelfth dorsal spine and involving touch, temperature, and pain sensations. Anæsthesia had involved the left leg to a lesser extent. Just before the man's death a large hæmorrhage had occurred, which had been confined to the center of the spinal cord and which had caused exquisite pain, the man, in fact, having died from exhaustion. Upon post-mortem examination, a large central hæmorrhage, which had destroyed nearly every particle of the spinal cord at the level of the seventh dorsal segment, had been found. This hæmorrhage had extended up and down for a distance of about three inches. Around the hæmorrhage and above it there were evidences of a gliomatous infiltration involving nearly the whole of the transverse area of the cord at that level. Very striking secondary degenerations, ascending and descending, had been found. The case had been one of glioma of the spinal cord, without any cavity having been formed. Although clinically, and in one sense pathologically, it might have been a case of myelosyringosis, yet that name could not strictly be applied to it.

Commenting on this case, Dr. Dana referred to the question of the existence or non-existence of a pain tract and to the advisability of searching for it. The psychologists seemed to have come to the conclusion that pain was not a sensation, but a form of feeling; that it was not to be classed with the sensa-

tions of touch, or of temperature, or of heat; that it did not have peripheral end organs, and that there were no nerves in existence which, on irritation, produced pain alone; that there was no such thing as a pain tract; that in attempting to locate such a tract we were pursuing a will-o'-the-wisp. Dr. Dana said that after a very careful study of this question he had been converted to the psychologists' view. If we maintained that there was a special tract for pain, we could just as well maintain that there was one for hunger and one for each of various other sensations. If there was a special tract for any of the common subjective sensations, there must be a special tract for each.

Dr. B. SACHS said that in former days he had held to the view that pain was nothing more than an intensification of the ordinary tactile sense, and in the majority of cases we met with such an explanation would hold good, and under such conditions we should not look for any special pain tracts. The clinical facts that had been brought out with regard to myelosingosis, however, did not bear out that theory. The touch and temperature senses might remain normal, whereas the pain sense was entirely lost. The psychologists' view of this question was one that was rather difficult to reconcile with the clinical facts as to myelosingosis. On the other hand, this disease was very destructive and irregular in its course, and for this reason was rather an unsafe guide for us to go by in trying to determine physiological functions.

Dr. C. A. HERTER said that several years before he had hemisected the spinal cord of a monkey in the mid-dorsal region, and had been unable to find in that case any evidence of a loss of sensibility to pain, either on the same side as the lesion or on the opposite side. He had also performed this experiment on an opossum with a like result. Mott, in his experiments, had cut the antero-lateral ascending tract and had been unable to find any evidence of loss of sensibility to pain. The results of experiments on animals, of course, could not be applied directly to man. The subject brought up by Dr. Dana was an interesting one, and up to the present time we had not enough cases on hand to base any definite conclusions upon.

Dr. LANDON CARTER GRAY said that in our present state of knowledge as regarded the exact functions of the various columns of the cord—the column of Burdach, that of Goll, and the so-called column of Gowers—and the uncertainty that existed as to the exact demarcation of the latter, we could arrive at no definite conclusions as to the situation of the pain tracts. So far as clinical evidence went, there certainly was such a thing as a pain sense. In hysteria the tactile sense might be preserved, while the pain sense was entirely lost.

The PRESIDENT said we must admit the existence of pain sensations and of a centripetal pain tract. That tract must necessarily go in through the posterior nerve roots, because there were painful sensations of an hallucinatory character in locomotor ataxia. It must extend for a distance in the central gray matter of the cord. We had now on record over seventy cases of myelosingosis with autopsies. In these cases there was a decided loss of the pain sense in a certain limb. If the affected limb was the arm, the cavity in the cord was in the cervical region, and the pain sense was preserved in the body and legs. Therefore these sensations, though they entered the gray matter, did not pass up for any long distance in it, but must pass into the white columns. The central gray matter contained numerous cells, each of which sent its fibers into the antero-lateral columns, and these passed upward. While it was by no means positive that the antero-lateral columns transmitted sensations of pain, all the facts seemed to point to the correctness of that theory. The column of Lissauer, to which one of the speakers had referred, could have nothing to do with the trans-

mission of pain sensations. It consisted only of short fibers which did not increase in size from below upward and could not transmit impulses upward for any great distance. The sense of hunger was by no means analogous to the sense of pain, as Dr. Dana had intimated. We must distinguish between a common sensation and a special sensation. In conclusion, the president referred to a case reported by Edinger, with autopsy, in which the lesion had been found in the parietal region on one side, and in which the symptoms had been chiefly those of intense pain radiating in the opposite side of the body. Edinger had described it as a case of central lesion producing a sense of pain.

Dr. DANA said that his views regarding the non-existence of a pain tract had been arrived at only after a long and thorough study of the subject. When we had come to mix up pain sense, touch sense, heat sense, etc., we were showing a mental confusion that was unworthy of advanced neurologists. Pain and touch were entirely different. Pain was a subjective or common sensation. Touch was objective. Pain was much more closely allied to hunger than it was to touch. Pain was not a special sensation, but a modification of it. We might have a painful wound, but we did not have a simple sensation of pain; it was always combined with something else. If we could get rid of the idea that we must keep on hunting for a pain tract, it would save much exertion and many futile experiments on monkeys and men.

Book Notices.

Human Embryology. By CHARLES SEDGWICK MINOT, Professor of Histology and Human Embryology, Harvard Medical School, Boston. Four Hundred and Sixty Illustrations. New York: William Wood & Co., 1892. Pp. xxiii-815.

THIS is one of the most valuable and important medical books ever published in the United States, and one of the most notable text-books of embryology ever published in any country. It is founded on the author's original investigations and upon his thorough knowledge of what has been done in this field by others. The introductory chapter deals with the uterus and the development of the placenta and the fetal envelopes, together with a general outline of the development of the human fetus. Part I, entitled *The Genital Products*, is made up of chapter iii, devoted to the history of the gonoblast and the theory of sex. Part II, including chapters iv, v, vi, and vii, deals with the segmentation of the ovum, the primitive streak, the mesoderm, the celome, and the germ layers in general. The author discards the terms *epiblast*, *mesoblast*, and *hypoblast*, and remarks that, "as a thorough knowledge of German is indispensable to the student of embryology, it is justifiable, where no English equivalent is to be found, to adopt such unaltered German terms as have been fully established in embryological literature." He has acted accordingly. From one point of view this course serves a useful purpose, for it leads him to explain the meaning that various writers attach to terms of their own invention. For example, on page 329, under the description of the human chorion, we find this passage: "The fibrillar layer is that commonly spoken of as the connective-tissue layer of the chorion; for details of its structure, including the '*Gefassschicht*,' see Langhans and Kastschenko. The inner layer . . . is called the *Gallertschicht* by many German writers, and seems to be what Kölliker . . . designates as '*Gallertgewebe zwischen Chorion und Amnion*.'"

Surely, however, such terms as epiblast, mesoblast, and hypoblast have met with sufficient currency to warrant their retention in preference to certain German words made up of vernacular components the intelligible translation of which is at least a matter of difficulty, as is exemplified in the author's translation of His's term *Deckplatte* into "deck-plate." We are unable to see, also, that the German *Vorderdarm*, has any advantage over the English foregut, and we must positively disapprove of the substitution of the German *Anlage* for rudiment, especially since, as is to be seen on page 487, it is held to call for such an utterly un-German plural as "*Anlagen*."

Part III, including chapters viii, ix, x, xi, xii, and xiii, deals with the medullary groove, the notochord, and the neurenteric canals, the divisions of the ectoderm, the origin of the mesenchyma, of the blood, of the blood-vessels, of the heart, and of the urogenital system, the archenteron and the gill clefts, the germinal area, and the embryo and its appendages. Part IV, including four chapters, is devoted to the chorion, the amnion and proamnion, the yolk sac, allantois and umbilical cord, and the placenta. Part V, comprising twelve chapters, and almost half of the book, treats of the development and growth of the various parts of the fetus.

Although the book is so largely founded on the author's original investigations, he so far divests himself of even a semblance of egotism as to speak of his own published contributions on embryology with such an introductory clause as "Minot says." He specifically says in the preface: "Whenever I have inserted a new observation or opinion, it is indicated as such by the use of the first person." The courtesy which is invariably displayed toward other writers is remarkable and most creditable. It is well illustrated in the following paragraph on page 641: "The ganglion of the trochlearis was discovered independently by A. Frioriep, . . . and Julia B. Platt . . . in elasmobranchs. It is a part of the neural crest, and is continuous for a time with the anlage of the trigeminal ganglion; the connected band of cells breaks down irregularly, but its scattered remnants persist for a time along the original line. At this stage the motor fibers grow out from the medulla near the dorsal summit of the ganglion, and the permanent trochlearis is developed. Miss Platt speaks of the ganglion as the 'primitive trochlearis,' and she interprets, page 97, *ramus ophthalmicus superficialis trigemini* as a survival of the original connection between the trigeminal and trochlear ganglia. As the connection here mentioned is on the level of the dorsal line of the neuron, it may be regarded as a part of a lateral line commissure. The discovery of the ganglion of the fourth nerve further demonstrates that the motor fibers represent a lateral root. In torpedoid embryos of sixteen millimetres Frioriep (*loc. cit.*, 56) has found a small group of ganglion cells, which soon disappear, but at this stage are appended to the caudal side of the midbrain. These cells are probably a remnant of the original ganglion. Miss Platt thinks that the trochlear ganglion also contributes to the ciliary ganglion, but her proof of this appears unsatisfactory to me." He adds in a footnote: "Miss Platt's description is somewhat obscure by her overlooking the fundamental difference between medullary and ganglionic nerves." This footnote shows how telling criticism can be couched in courteous language. Even criticisms that savor of complaint the author succeeds quite as well in expressing without carping or injurious words, as is shown in the following passage on page 78, under the heading of the nature of sexuality: "Minot's hypothesis is strictly morphological and offers us no insight at present into the physiological aspects of sexuality. It has been adopted by Balfour and Ed. Van Beneden, neither of whom cite [*sic*] Minot." The only instance that we have observed in which anything approaching

discourteous dissent from an author's views occurs in the book is in a footnote on page 149, in which the author states that Mitsukuri has "attempted to deny" the views advanced by him. By the way, if Mitsukuri "attempted" to deny Minot's views, we can not see why he should not have succeeded; what the author probably meant to say was that Mitsukuri had attempted to refute his views.

The author's critical study of the literature of embryology is well exemplified in the following passage from page 300: "Coste's embryo has been beautifully figured in his great work. . . . It is possible that it really belongs to an older stage with the dorsal bend, compared to Fig. 169, and that it was stretched out by Coste; the difficulty of assigning it to its place is due to the entire uncertainty as to its actual dimensions. Coste's private collection is, I believe, now in the College of France, but upon search this particular specimen could not be found, so that His's inquiries to ascertain its actual length were resultless. Kölliker states that it was 4.4 millimetres long, but his authority for the statement is not given; the measure was probably taken from Coste's figure, '*grandeur naturelle*.' Since embryos of this length are far more developed than Coste's, it is probable that Coste's data as to the magnification of his figures are inaccurate. If we assume the embryo to have been really about 2.5 millimetres, it will then agree, except as to the great length of the rump, very closely with what we know otherwise of such young embryos."

There is no question of the author's thorough knowledge of his subject, and in general his style of writing is so clear as to stamp him as an excellent teacher. We find some slips, however. For example, the tense requirements of protasis and apodosis have been overlooked in a few instances; on page 1 the *mucosa corporis uteri*—correctly printed on page 3—is given as *mucosa corpus uteri*; on page 758 we find "cecum" for cæcum—a mistake that the author would probably never have made had he accustomed himself to the Roman pronunciation of Latin; on page 8 Allen Thomson's name is spelled Thompson; on page 178 we find "metecephalon" for metencephalon, and in the expression "foramen of Monro" the Scotch anatomist's name figures variously as "Munroe," "Monroe," and (correctly) Monro.

The volume presents a handsome typographical appearance, marred only by the bold-faced numerals indicating the dates and sequence of articles in periodicals. The pictorial illustrations are profuse, they answer their purpose well, and in general they are very well executed.

We feel sure that the faults to which we have called attention are the result of oversight, and we have mentioned them chiefly to aid in their correction in a second edition, which we hope will soon be called for.

A Text-book of Physiological Chemistry. By OLOF HAMMARSTEN, Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized Translation from the Second Swedish Edition and from the Author's enlarged and revised German Edition. By JOHN A. MANDEL, Assistant to the Chair of Chemistry, etc., in the Bellevue Hospital Medical College and in the College of the City of New York. New York: John Wiley & Sons, 1893. Pp. x-511. [Price, \$4.]

THE increasing recognition of the influence of autogenetic products on the phenomena of disease has resulted in increased attention to the subject of physiological chemistry. In fact, we believe it will be but a few years before the teaching of ordinary chemistry will be relegated from the curriculum of medical colleges to that of preparatory schools, where it prop-

erly belongs, and as much of the medical student's time as has heretofore been devoted to general chemistry will be occupied by a laboratory course in physiological and pathological chemistry. The translator of this volume may have looked forward to the time when such a condition of affairs would ensue, but we believe that time is very near at hand.

This volume is admirably suited for laboratory purposes, as it describes the best methods for the preparation, detection, and quantitative estimation of most of the substances found in the organism. The author's work is condensed as much as is possible with a proper presentation of the principal results of physiologico-chemical research and with the methods of physiologico-chemical investigation. He has given considerable space to pathologico-chemical subjects.

We hope that in the next edition the translator will introduce such illustrations as will enhance the usefulness of the text.

The Essentials of Chemical Physiology, for the Use of Students.

By W. D. HALLIBURTON, M. D., F. R. S., Fellow of the Royal College of Physicians, and Professor of Physiology in King's College, London, etc. London and New York: Longmans, Green, & Co., 1893. Pp. xi-166. [Price, \$1.50.]

THE author of this volume is so well and favorably known to the profession by his text-book on chemical physiology and pathology that his name is a sufficient guarantee of the value of this work.

The increasing importance of its subject is everywhere appreciated in medical teaching, and this small volume is a guide to supply students with directions for examining practically the most important of the topics included under the heading of physiological chemistry.

The lessons are divided into those belonging to an elementary and those belonging to an advanced course. Each of the elementary lessons is supposed to occupy the student for an hour, while the advanced lessons will take about two hours to carry out. In an appendix there is a description of the special instruments used in medical chemistry.

The work is essentially a practical one, and, though meant entirely for students, it can not but be of value to the practitioner who may desire information regarding the methods of chemical examination as applied to medicine.

An Outline of the Embryology of the Eye. With Illustrations from Original Pen Drawings by the Author. By WARD A. HOLDEN, A. M., M. D., Assistant Surgeon, New York Ophthalmic and Aural Institute, and Clinical Assistant, Vanderbilt Clinic. New York and London: G. P. Putnam's Sons, 1893. Pp. 69. [Price, 75 cents.]

THIS essay, which took the Cartwright prize in 1893, is based on the examination of a great number of specimens, and is a valuable addition to the literature on the subject. It would be difficult to give even a synopsis without reproducing the entire essay, and the title clearly indicates its scope.

New Truths in Ophthalmology, as developed by G. C. SAVAGE, M. D., Professor of Ophthalmology in the Medical Departments of the University of Nashville and Vanderbilt University. Thirty-two Illustrations. Published by the Author, 1893.

EVIDENTLY, from the title of his book, Dr. Savage does not believe that there is nothing new under the sun. He has brought together a number of short papers, several of which have been read before medical societies, and in them he expresses his views on several subjects. While he has doubtless

demonstrated the accuracy of his views to his own satisfaction, it is doubtful if the whole world of ophthalmologists will accept all his "new truths," or if the author himself may not in the future modify them somewhat.

A Text-book of Ophthalmology. By WILLIAM F. NORRIS, A. M. M. D., Professor of Ophthalmology in the University of Pennsylvania, and CHARLES A. OLIVER, A. M., M. D., one of the Surgeons to the Wills Eye Hospital, Philadelphia. Illustrated with Five Colored Plates and Three Hundred and Fifty-seven Woodcuts. Philadelphia: Lea Brothers & Co., 1893. Pp. vii-19 to 641.

THE first part of this work, which was written by Dr. Oliver, is the better, and the chapters on embryology, macroscopic and microscopic anatomy, physiology, optics, and physiological optics are exceptionally good. These subjects occupy about a quarter of the entire work, instead of being dismissed with a few words, as is the case with too many otherwise good text-books, and are presented with reasonable fullness and detail. The chapter on the examination of the eye also is excellent. The remaining chapters of this part, though good, seem to show a little falling off from the fine work which precedes them. Possibly this may be because the same subject is treated of by Dr. Norris in the second part.

The second part, by Dr. Norris, is devoted to what may be called practical ophthalmology, the injuries and diseases of the eye and its appendages, their treatment, operations, and refraction. It seems a little strange to find the subject of refraction treated of in two places in the same book, as it is here—in one place by Dr. Oliver, in the other by Dr. Norris. If Dr. Oliver had increased the length of his chapters on the subject by the space occupied by Dr. Norris on the same subject, a very valuable article would doubtless have been the result. One would judge from what both write that neither had a working knowledge of the Javal-Schiötz ophthalmometer. It is difficult to write a criticism on the second part of the work, because it is not decidedly either better or worse than a considerable number of text-books on the same subject. It is a good, serviceable work as a whole.

Biblioteca Científica Moderna. Medicación y Medicamentos Cardio-motores. Por D. ANTONIO ESPINA y CAÑO, Médico por Oposición del Hospital Provincial de Madrid. Segunda Edición, corregida y considerablemente aumentada. Madrid: Administración de la Revista de Medicina y Cirugía Prácticas, 1893. Pp. vi-334.

THE volume is divided into three parts. Of these, the first is devoted to classification and general considerations on cardiac physiology and pathology; the second, to the study of drugs employed as cardiac stimulants and tonics; and the third, to morbid cardiac conditions and their therapeutics.

The book is well arranged and compact, yet sufficiently complete for its purpose, and contains much of value and interest. Its small and yet convenient size renders it particularly a comfortable book to read, and to this its flexible covers add yet more.

BOOKS, ETC., RECEIVED.

A Text-book of Physiology. By M. FOSTER, M. A., M. D., LL. D., F. R. S., Professor of Physiology in the University of Cambridge, etc. Fifth American from the Fifth English Edition, thoroughly revised, with Notes, Additions, and Three Hundred and Sixteen Illustrations. Philadelphia: Lea Brothers & Co., 1893. Pp. xvi-33 to 1083. [Price, \$4.50.]

Pyogenic Infective Diseases of the Brain and Spinal Cord.

Meningitis. Abscess of Brain. Infective Sinus Thrombosis. By William Macewen, M. D., Glasgow. New York: Macmillan & Co., 1893. Pp. xxiv-354. [Price, \$6.]

Atlas of Head Sections. Fifty-three Engraved Copperplates of Frozen Sections of the Head, and Fifty-three Key Plates with Descriptive Texts. By William Macewen, M. D. New York: Macmillan & Co., 1893. [Price, \$21.]

Surgery. A Manual for Students and Practitioners. By Bern B. Gallaudet, M. D., Demonstrator of Anatomy and Clinical Lecturer on Surgery, College of Physicians and Surgeons, New York, and Charles N. Dixon-Jones, B. S., M. D., Fellow of the New York Academy of Medicine and the British Gynecological Society, etc. Series edited by Bern B. Gallaudet, M. D. Philadelphia: Lea Brothers & Co., 1893. Pp. 6-17 to 301. [Price, \$1.75.] [*The Students' Quiz Series*.]

The Uniform System of Accounts, Audit, and Tenders for Hospitals and Institutions, with Certain Suggested Checks upon Expenditure, and Tender and other Forms for Securing Economy, and the Index of Classification. Compiled by a Committee of Hospital Secretaries, and adopted by a General Meeting of the same, January 18, 1893. By Henry C. Burdett, author of *Hospitals and Asylums of the World*, etc. London: The Scientific Press, Limited, 1893. Pp. 5 to 76. [Price, 6s.]

The Art of Massage. By A. Creighton Hale. Profusely illustrated with Original Drawings. London: The Scientific Press, Limited, 1893. Pp. xvi-144. [Price, 6s.]

Outlines of Insanity. An Attempt to Present in a Concise Form the Salient Features of Mental Disorder; Tabulated and arranged for Facility of Reference when Drawing up Lunacy Certificates. Designed for the use of Medical Practitioners, Justices of the Peace, and Asylum Managers. By Francis H. Walmsley, M. D., Leavesden Asylum, etc. London: The Scientific Press, Limited, 1892. Pp. vi-154. [Price, 3s. 6d.]

Mental Nursing, or Lectures for Asylum Attendants. By William Harding, M. B. (Ed.), M. R. C. P. (Lond.), Assistant Medical Officer, Female Department, Berrywood, Northampton, etc. London: The Scientific Press, Limited, 1893. Pp. vii-131. [Price, 2s. 6d.]

La pratique des maladies du système nerveux dans les hôpitaux de Paris. Aide-mémoire et formulaire de thérapeutique appliquée. Par le Professeur Paul Lefert. Paris: J. B. Baillière et fils. Pp. 8-9 to 285. [Prix, 3 fr.]

Hospice de la Salpêtrière. Clinique des maladies du système nerveux M. le Professeur Charcot. Leçons du professeur, mémoires, notes et observations parues pendant les années 1889-'90 et 1890-'91 et publiés sous la direction de Georges Guinon, chef de clinique. Avec la collaboration de MM. Bloch, Souques et J. B. Charcot, internes de clinique. Tome II. Paris, Felix Alcan, 1893. Pp. 482. [Prix, 12 fr.] [Publications du *Progrès médical*.]

Shipowners and Ships' Surgeons. Including Truth's Article, Doctors at Sea. By Charles Henry Lect, Fellow of the Royal College of Surgeons of England, etc. Seaforth: Liverpool, 1893.

Quinsy and its Treatment by Early Incision. By John Winters Brannon, M. D., New York. [Reprinted from the *Medical Record*.]

Insufficiency of the Ocular Muscles due to Errors of Refraction. By S. M. Payne, M. D., New York. [Reprinted from the *New York Polyclinic*.]

Epileptic Insanity. By James H. McBride, M. D., Wauwatosa, Wis. [Reprinted from the *Review of Insanity and Nervous Diseases*.]

Laughing Gas as an Anæsthetic in General Surgery. By T. L. Macdonald, M. D., Washington, D. C. [Reprinted from the *Southern Journal of Homæopathy*.]

Mechanical Aids in the Treatment of Chronic Forms of Disease. By George H. Taylor, M. D., New York. New York: George W. Rodgers, 1893.

Annual Report of the State Board of Charities. For the Year 1892.

The Measured Effects of Certain Therapeutic Agents, among which especially are Lavage, HCl, and Intra-gastric Electricity, upon the Secretory and Motor Functions of the Stomach in Cases of Chronic Catarrh (Glandular Gastritis). [Reprinted from the *Therapeutic Gazette*.]

Reports on the Progress of Medicine.

OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, M. D.

The Search for a Method of extracting Cataract which will enable us to avoid Incarceration and Prolapse of the Iris.—Nicoti (*Archives d'ophtal.*, December, 1892) offers the following aphorisms: 1. Ordinary iridectomy prevents prolapse, but does not prevent incarceration. 2. A fenestrated iridectomy renders incarceration and prolapse less frequent, but does not prevent them altogether. 3. Only a very large iridectomy seems to be absolutely efficacious. 4. Flap cystiotomy made simultaneously with the corneal section prevents capsular incarceration better than other methods. 5. A conjunctival flap protects the scar from the grave dangers of incarceration and prolapse.

The Ætiology of the So-called Retinitis Proliferans.—Schultze (*Arch. of Ophthalm.*, xxii, 2) thinks that vitreous or retinal hemorrhages are always present, and to these may be attributed the chief rôle in the development of the affection. He believes that the new masses seen in the fundus are not inflammatory or exudative, but rather deposits of unabsorbed blood-fibrin. The deposits are in intimate connection with the retina and cause atrophy of the nervous elements of the retina and hypertrophy of the connective-tissue elements, and finally become themselves transformed into finely fibrous cicatricial tissue. Since in every case vitreous hemorrhages are found at some period, it is probable that we have to do here with an imperfect absorption of blood coagula which become adherent to the retina, and finally lead to a proliferation of the connective-tissue framework of the retina. Schultze considers the name "retinitis proliferans" unsuitable for this affection, since an inflammation of the retina has never been observed as the primary disease, while retinal and vitreous hemorrhages are always found. The remains of these hemorrhages finally form the white deposits on the retina, which are nothing more than unabsorbed masses of fibrin precipitated on the retina, that in the course of time assume the appearance of connective tissue, and cause fibrous degeneration of the underlying retina.

The Treatment of Ptosis.—Meyer (*Arch. of Ophthalm.*, xxii, 2) has devised an apparatus for the treatment of traumatic ptosis, which consisted originally of the finest steel wire, but which he subsequently changed to wire of eighteen-carat gold. This he folded upon itself and bent into a loop, the upper convex branch of which was pushed, with a fold of skin of the upper lid, up under the superior orbital margin. The lower branch was so formed as to lie close beneath the eyelashes of the lower lid, and so bent under the internal canthus that it found support against the nose. In order to obtain sufficient elasticity, a sort of loop corresponding to the external canthus was made, and the two free ends were made to terminate in

small buttons. In order to prevent the winking of the lids from thrusting out the wire, an angular bend was given to the upper branch which succeeded perfectly. The thickness of the wire, as well as the length of the interposed spring, and the elasticity and mechanical resistance of the lid elevator, must be fixed by experiments.

Pulsating Exophthalmia following a Fracture at the Base of the Skull.—Despagnet (*Rec. d'ophthal.*, May, 1893) reports an interesting case of this nature occurring in a woman, aged sixty, who was run over by a carriage, and was picked up unconscious and bleeding from the left nostril and left ear. The bleeding soon stopped, but recurred profusely during the night. The patient complained constantly of severe headache at the vertex and of a buzzing noise like a saw on the left side of the head. Six days later the eyelids became edematous on the right side, the right eye protruded, and the conjunctiva was chemotic. There was no pulsation then, but at the end of the third week it appeared at the supero-internal angle, and the presence of an arterio-venous aneurysm was no longer doubtful. Constant orbital compression over the closed eye by means of an elastic bandage was continued from the first, and by the end of the sixth week there was a perceptible diminution of the exophthalmia. The eye was totally blind and eventually the cornea partially necrosed, but at the end of the ninth month the exophthalmia had disappeared, though the pulsation remained. Motility of the eye was nearly abolished. The left eye remained intact throughout.

The Interrupted Blood Column in the Vessels of the Eye.—Friedenwald (*Ophth. Rev.*, June, 1893) considers that in cases of sudden blindness due to an interrupted blood current in the retinal vessels, the circulating blood in the vessels breaks up into colorless and colored parts, into parts free from red corpuscles, and parts in which the latter become aggregated in masses, and that this occurs when the current is greatly retarded. This would explain the fact that the phenomenon has been seen much oftener in veins than in arteries. The fact seems to force the conclusion that there is cohesive attraction between the red blood-corpuscles, which naturally manifests itself only when the current is very slow.

The Extraction of a Bullet from the Orbit which had remained there for Twenty-three Years.—Rosse (*Rec. d'ophthal.*, June, 1893) reports the case of a man, aged fifty years, who had been shot in the right eye at the battle of Sedan in 1870. The conjunctiva was red and swollen, and at the bottom of the orbit appeared a small black mass about four millimetres in diameter, which, after repeated attempts, was removed, and proved to be a lead bullet two centimetres long and weighing thirty-two grammes. The left eye had remained intact throughout, with perfect vision. The orbital walls were totally uninjured.

Congenital Serous Cysts of the Orbit; Anophthalmia and Microphthalmia.—Fromaget (*Arch. d'ophthal.*, June, 1893) reports a case of this nature, and concludes from his investigations that a large part of the tumor contained a cavity lined with glandular, cylindrical epithelium, into which cavity opened numerous diverticula lined with similar epithelium. The cyst was really bilobate, the elongated portion corresponding to the optic nerve, while the larger, rounded portion pushed the lid forward. The chemical examination of the contents of the cyst enabled him to eliminate any cerebral origin to the tumor, while the microscopic examination proved it to have been derived from a mucous membrane. He concludes that in the embryo a portion of the naso-lacrimal mucous membrane was encapsulated in the orbit and gave rise to the cyst.

The Vision in Circles of Dispersion.—Salzmann (*Arch. für Ophthal.*, xxxix, 2) concludes from his investigations that the

diminution of the acuity of vision experienced in circles of dispersion is entirely independent of the dioptric construction of the eye. The variations in the acuity of vision depend entirely upon the width of the pupil, the defects of accommodation, and the coefficient of practice. The latter can only be determined empirically, and this renders it impossible to determine with any exactness the visual acuity.

The Pigment of the Eye.—Scherl (*Arch. für Ophthal.*, xxxix, 2) writes in a way that makes it almost impossible to make an intelligible abstract. He finds that the absence of any vascular system in the interior of the eye in birds explains the constant appearance of pigment early in life on the external surface of the proximal lamella. In all mammalia and in man, where an internal vascular system is met with, the pigment is formed first upon the inner surface of the proximal lamella. There is here a direct dependent relationship between the nearness of the vascular system and the development of the pigment.

The Development and Extension of Orbital Sarcoma.—Holden (*Arch. of Ophthal.*, xxii, 3) gives the results of his examination of three cases of sarcoma of the orbit. The three cases exhibit the different starting points which those growths may have—one springing from the periosteum, and being for the most part fibrous; another having its origin in the cellular tissue of the orbit, and being composed almost entirely of small cells; and the third arising in the choroid and extending back through the optic nerve, forming cellular foci in the dura sheath of the nerve and elsewhere in the orbit. In all these cases the cells of the younger, developing portions of the tumor, the sarcoma cells in the infiltrated tissues, and the sarcomatous foci at a distance from the main growth, could for the most part be traced to the proliferation of the adventitial or endothelial cells of vessels, which were continuous with those of the mass of the tumor. The fibrous tissue in the substance of a sarcoma, or forming its capsule or sheath, may have three sources of origin: 1. It may be simply the previously existing tissue of the part changed in its relations by the development of the sarcoma cells. 2. It may be new tissue formed in the usual way by the proliferation of connective-tissue cells or formative cells. 3. It may be developed by the proliferation of the adventitial cells of vessels. Holden is of the opinion that sarcoma of the orbit develops mostly from the proliferation of the adventitial cells and more rarely of the endothelial cells of vessels. Even dense connective-tissue membranes and capsules offer little resistance to the extension of sarcoma when the vessels of the tumor are continuous with those of the membrane.

Bilateral Hemianopsia.—Schmidt-Rimpler (*Archives of Ophth.*, xxii, 3) reports an interesting case occurring in a man, aged fifty-one years, who was struck on the head by a heavy stone, and who died four years and a half later. The autopsy revealed diffuse hematoma and cicatricial contraction in the region of the injury, foci of softening in the border between the gray and white substances, in the right temporal lobe an apoplectic cyst, and in the right cerebellar hemisphere apoplectic cysts. The hemianopsia homonyma dextra was preceded by headache and paresis of the right extremities with clonic spasms. A year later, after a short prelude of subjectively observed contraction of the field, absolute total blindness suddenly ensued. A small central visual field was gradually restored, but slowly became reduced to a minimum. The autopsy revealed as the cause of the first right-sided hemianopsia a hematoma of the dura mater. The right paresis must be regarded as a sequence of the extensive cicatricial contraction in the posterior central convolution. The yellowish foci of cheesy matter in the region between the gray and white substances in

the posterior portion of the right posterior lobe may explain the later loss of the left visual field.

The Position of the Source of Light and the Observer in Skiascopy.—Jackson (*Arch. of Ophth.*, xii, 3) holds that with a plane mirror the lamp flame should be brought as close to the mirror as possible. With a concave mirror the immediate source of light is brought to its most desirable position by carrying the original source as far behind the patient as possible. The closest approach to accuracy will here be made in the determination of the nearest point to the patient's eye that the light in the pupil moves with the light on the face. In order to bring out most distinctly the characteristic band-like appearance of the light in the pupil, the observer must place his eye at the point of reversal for the meridian in which he wishes to obtain the band and place the immediate source of light at the point of reversal for the other principal meridian.

Movements of the Upper Eyelid associated with Lateral Movements of the Eyeball.—Friedenwald (*Arch. of Ophth.*, xii, 3) reports several cases of this peculiarity, and finds that the peculiar associated movements under consideration may occur in a variety of conditions, without any paralysis or with paralysis of the external or internal rectus, and that it may be both congenital and acquired. He finds that there may be contraction of the orbicularis associated with movements of the jaw or the contraction of various facial muscles. Or there may be contraction of the levator palpebræ superioris associated with the act of moving the jaw or of swallowing, or finally there may be contraction of the levator associated either with abduction or with adduction of the eyeball.

Orbital Lower-lid Cysts with Microphthalmia or Anophthalmia.—Mitvalsky (*Arch. of Ophthal.*, xii, 3) draws the following conclusions from his observations: The spoon-shaped ball open below may be considered as developed from the proximal layer of the primary optic vesicle. This layer produces first in the usual way the single stratum of pigment epithelium. The bordering mesoblast then begins to form a chorioid and fairly typical sclera. Anteriorly the cornea and iris are developed later. All the products of the distal layer of the primary vesicle are found hanging to the rudiment of the ball, surrounded by a fibrous wall, which also incloses a large orbital lower-lid cyst. The distal layer of the primary optic vesicle retains, however, its original position, while the absence of the lens shows that no invagination of the secondary optic vesicle occurred. The secretion of the ocular fluid in these cases goes hand in hand with the development of the coats of the eye. The current from the retinal epithelium takes the direction of least resistance and passes into the folded products of the distal layer developing in the neighboring mesoblast and distending them. When a fibrous sheath has formed about these products, the weaker portions of this sheath yield, and a large reservoir is formed, preventing the proper development of the inferior orbital wall and eventually pushing out the lower lid.

A New Phorometer.—Prince (*Arch. of Ophth.*, xii, 3) has devised a phorometer which consists of two prisms of two degrees each, combined with a Maddox rod. He claims for it the following advantages over the simple Maddox rod:

1. It removes the possibility of preconceptions on the part of the patient.
2. It avoids the necessity of an explanation of terms to the patient.
3. It avoids the errors from fatigue due to delays occasioned by the changing of prisms.
4. It indicates the character of the heterophoria.
5. It indicates the manifest quantity to a fraction of a degree.

6. It saves the time of the observer.

7. Its simplicity and inexpensiveness, together with the rapidity and accuracy with which the presence or absence of heterophoria is determined, render it of special diagnostic value to the general practitioner or neurologist.

Two Cases of Ophthalmoplegia Externa with Paresis of the Orbicularis Palpebrarum.—Hughlings Jackson (*Lancet*, July 15, 1893) reports two cases which, in their clinical aspects, support Mendel's theory that the fibers supplying the orbicularis palpebrarum arise from the nucleus of the third nerve, although they come out by the facial.

Observations on Ring Infiltration of the Cornea.—Collins (*Ophth. Rev.*, August, 1893) considers that ring infiltration of the cornea, so far as four cases indicate, seems to be an affection which follows perforating septic wounds of either its central or peripheral portions. Whatever the locality of the wound, the ring of infiltration occupies precisely the same position, its outer edge being one millimetre distant from the corneal margin. The ring forms very rapidly after the infliction of the wound. It is accompanied by pus in the anterior chamber. Microscopically, the cell accumulation between the lamellæ of the cornea is seen to be densest at a position almost equidistant from its anterior and posterior surfaces. The area of cornea within the ring is at first quite free from infiltration, but later a general diffuse cellular increase is observed throughout the entire cornea.

The Rod Test with the Rotary Variable Prism.—Jackson (*Ophth. Rev.*, August, 1893) advises that, for the fixed prism, the rod should be ground with its flat side inclined to the cylindrical surface, so that it exerts a prismatic action in the direction of its length. The angle chosen for the rotary prism is five centrats, with an equal prismatic effect given to the rod. In the primary position they exactly neutralize each other; and by rotation of the prism through 180° every effect up to the maximum of ten centrats is produced. The rotary prism must be turned almost 37° before one centrat of change in prismatic effect is produced. With it the lowest degree of deviation can be measured with minute accuracy.

Lamellar Cataract in Elderly Persons.—Hirschberg (*Contrib. f. prakt. Aug.*, August, 1893) considers that lamellar cataract is due to some transient affection of the foetal lens, and is the most frequent form of lens opacity met with in children and young persons. It is excessively rare in elderly persons, and De Wecker believes that its rarity here is due to its transformation into total cataract. Hirschberg, however, believes that there are three possible reasons for its rarity: 1. Patients with lamellar cataract die early. 2. The lamellar cataract changes to total cataract in course of time. 3. The lamellar cataract remains unchanged, but is very difficult to recognize in elderly persons. The first proposition may be discarded as untrue. The second condition may be regarded as occurring very rarely. Lamellar cataracts have been repeatedly under constant observation for years without any change being noticed. Still, occasionally such change has been noticed, the opacity becoming denser while its diameter may remain unchanged. This change is difficult to recognize unless the iris has been dilated.

The Treatment of Ulcers and Abscesses of the Cornea by Scraping and Irrigation.—De Wecker (*Ann. d'oc.*, July, 1893) claims that this treatment of corneal abscesses and ulcers by thorough scraping and subsequent irrigation gives surprising results, as follows: 1. The almost instantaneous suppression of pain and photophobia. 2. The clearing up of the surrounding parts, followed by much more rapid healing than by any other means. 3. Repair by a more transparent tissue than that which follows other methods of treatment.

Ocular Syphilis and its Treatment.—Chibret (*Ann. d'oc.*, July, 1893) concludes his paper on this subject by three propositions: 1. The best mode of general treatment for all forms of ocular syphilis consists in hypodermic injections of soluble salts, and especially of HgCy. 2. The disadvantages of injections of soluble salts are the local pain, which is, however, bearable, and the diarrhœa, which, as a sign of acute mercurial poisoning, may be easily avoided. 3. Potassium iodide has no specific value against syphilis, but it facilitates the elimination of the mercury and combats chronic poisoning. Its addition to a mercurial treatment diminishes the specific effect of the latter.

A New Scotometer.—Antonelli (*Ann. d'oc.*, July, 1893) has devised a scotometer which has some advantages. In place of the ophthalmoscopic mirror there is a metallic disc having a circular hole at its center, which by means of a button can be made to vary in diameter from one to fifteen millimetres. A needle at one side indicates in millimetres the diameter of this hole. Each of the two discs corresponding to the two lens-bearing discs of the ophthalmoscope is perforated at its periphery by eight holes of a diameter of fifteen millimetres. The anterior of these two discs has one empty hole and the other seven holes are covered by discs of colored paper—white, deep yellow, red, orange, green, blue, and violet. The posterior disc carries eight glasses, one dense white, and the others are pale red, deep red, bright green, deep green, blue, violet, and yellow. In examining the color sense of the patient by daylight we use the first disc; if by artificial light, we use the second disc. A detailed description of the method of using the instrument follows.

Instantaneous Photography of the Fundus of the Human Eye.—Guilloz's (*Arch. d'Ophthal.*, August, 1893) method consists in photographing the inverted image of the fundus. His apparatus consists of a magnifying glass, a lamp, and a photographic camera. The magnifying glass is a lens of D. 15 to D. 20 taken from a case of trial lenses. It is fixed by its mounting between the teeth of a support which permits of its being moved in all directions. The lamp is an ordinary movable gas lamp, in which the ordinary chimney is replaced by a chimney of sheet-iron, pierced by two openings, the axes of which are perpendicular. Both are supplied with a cylindrical margin. The largest, three centimetres in diameter, holds a tube containing at its end a lens of D. 18. The focus of this lens occupies the position of the flame. It is protected by a disc of plane glass of the same diameter from the products of combustion of the magnesium mixture projected automatically into the flame when desired. Into the other flange works a little instrument called a magnesium pistol. A square rod glides in a similar opening at the base of a cylinder of which the other free, open extremity is capable of being adapted to the lamp. This rod terminates in the cylinder by a spoon, and its other end is threaded so as to fit into a screw-nut which limits the excursions of the rod in the cylinder. A roller spring placed in the pistol concentrically with the rod bears by its two ends against the posterior wall of the instrument and against the vertical posterior border of the spoon. The pistol is loaded by drawing on the posterior end of the rod; the spring is compressed, and a movable lever by its own weight catches the hook at one of its extremities in a little notch in the lower part of the rod. There is an opening in the upper wall of the cylinder on the same level with the spoon. Through this may be introduced into the spoon from gr. 0.20 to gr. 0.30 of a mixture of magnesium and potassium chlorate. At the moment of taking the plate a rubber bulb fitted to the photographic apparatus is compressed; this action raises a little piston, which, acting on the other end of the lever, aids in throwing the magnesium mixture into the flame. The combustion is so

prompt that the instantaneous diaphragm is done away with and is replaced by the instantaneous action of the light. After each combustion the tube containing the lens should be withdrawn in order that the plane glass which protects it may be cleansed. A long description of the camera employed and of the method of operating follows.

Metastatic Inflammations in the Eye, and Retinitis Septica.—Herrnbeiser (*Zeitsch. für Heilk.*, xiv, 1893) has observed retinitis septica in about thirty per cent. of the cases examined, covering a period of about seventeen months. He gives the results of the microscopical examination of six cases, in all of which death resulted. In his opinion, the invasion of the micro-organisms and the products resulting from their action cause a chemical change in the blood, which is answerable for the extravasation of blood in the retina. It leads to a general poisoning of the system caused by the absorption of the poisonous material produced by the bacteria, and induces manifold changes in all the different organs of the body. The extravasation of blood in sepsis is the expression of a previously existing disturbance of nutrition in the walls of the blood-vessels, and is not caused by embolic obstruction of the vessels.

The Weiss Reflex as a Sign of Myopia.—Randall (*Ophth. Rev.*, September, 1893) thinks that this curved reflex, parallel and close to the margin of the disc, may be recognized much more frequently if carefully looked for with a strong concave mirror, such a mirror being calculated to emphasize all the retinal reflexes. No positive statement can be made as to its significance, but it is conspicuous in some cases of distending eyeball. It may also be seen in eyes showing no tendency to distention, while on the other hand some cases of progressive myopia do not show it.

Convergent Squint and its Treatment.—Thompson (*Ophth. Rev.*, September, 1893) thinks the operation for convergent squint, when considered by the light of the ultimate result, one of the most difficult, uncertain, and unsatisfactory in ophthalmic surgery. Many patients never acquire binocular vision, because of some inability to join the two cerebral pictures of the same object. He believes that the principal cause of the difficulty of its correction is the fact that all of the muscles which turn the eye play an important part in its causation, and that both they and the connected fascia come to have altered relations with the eyeball, which are not readjusted by a simple tenotomy. In children, glasses give relief sometimes, but rarely. When simple tenotomy is done, the effect of the operation should be divided between the two eyes. He prefers the combination of tenotomy with advancement, but the advancement should always be capsular. He advocates advancement upon one or both eyes, with or without tenotomy, in all cases after the thirteenth year.

The Repair of Staphylomatous Cornea.—Scott (*Ophth. Rev.*, September, 1893) considers it possible in many cases of markedly staphylomatous cornea, where the other structures of the eye are practically intact, to excise a portion of the staphyloma, and then, by the use of sutures, to convert into a simple leucoma, which may be eventually tattooed, what was previously an unsightly, irritable, and irritating deformity; and in some cases to restore a certain amount of useful vision by means of an artificial pupil. He uses a knife, in preference to scissors, in removing the corneal tissue, because the cut is cleaner and no squeezing action is exerted on the tissues. Care should be taken to avoid the direct apposition of the free corners of flaps of tissue. The operation is done in the same way as in former operations for the removal of staphylomatous tissue, and the stitches are tied very lightly, so as to avoid any undue tension. The dressings are changed twice daily.

A Blepharostat.—Terson (*Arch. d'Ophthalm.*, September, 1893) has devised a blepharostat which he maintains answers to the three following indications: 1. The septic rubbing of the ciliary margin and cilia is prevented by the spoons of the instrument, which resemble those of Panas's instrument. 2. The instrument can be instantaneously removed, the limitation of the stretching or opening be made by a screw, which runs, as in Desmarre's lid forceps, outside the arms on a spiral rod. The spring is sustaining for all violent movements of the lids. If the patient is very intractable, the arms may be solidly fixed wide open by a washer of metal running within the arms on the preceding rod. 3. The articulation at the level of the spoon arms, which has also been employed by both Abadie and Vacher, allows the instrument to be employed at the internal or external angle.

Edison's Electric Pen in Ophthalmology.—Maklakoff (*Arch. d'Ophthalm.*, September, 1893) concludes as follows from his investigations into what he calls "tetanization" of the eye: 1. In normal eyes with normal tension, tetanization of short duration, either directly on the eyeball, or indirectly through the lids or through rubber bladders filled with water, causes a marked lowering of the tension. 2. In eyes with increased tension, especially in glaucomatous eyes, immediate lessening of tension may be induced. 3. In other cases of hypertonus the tension sometimes increases, but this does not last long. 4. The tetanization produces a surprising effect in traumatic cataract by promoting absorption of the cortex. 5. In some cases of sympathetic iridocyclitis, tetanization causes extraordinary amelioration. 6. In some cases of complete posterior synechia the hypertonus is considerably reduced and remains so for some time.

The Influence of Recession of the Eyeball upon the Refrangibility of the Correcting Cylinder in Different Forms of Astigmatism.—Ostwalt (*Arch. d'Ophthalm.*, September, 1893) draws the following practical conclusions: If the optometric examination does not place the axis of the correcting cylinder in the same axis as that existing in the prescribed glasses made by the optician, the correction gained by these lenses will be inferior to that obtained by the ophthalmometer. The difference will be the greater as the axis of the cylinder obtained by the ophthalmometer is further removed from that in the lenses prescribed in the usual way, and as the spherical ametropia accompanying the astigmatism is the greater. Other things being equal, the difference will be greater in compound myopic than in compound hypermetropic astigmatism.

Miscellany.

The Medical Society of the County of New York.—In his presidential address before the society, delivered on the 27th of November, Dr. Seneca D. Powell said that he was satisfied that injustice and embarrassment were occasioned by the readiness of the community to abuse opportunities for free treatment, together with the indifference of many physicians and their failure to investigate and to discriminate in such cases. It was not his thought to check a real benevolence. He would be the last man to deny the benefits of science to the poor. It was the glory of the city that no one, in whatever extremity of poverty, needed to perish or suffer for lack of prompt and skillful medical attention. But the policy, or at least the practice, of many dispensaries and hospital associations put a premium on meanness and withdrew from the local practitioner his natural clientage by compliantly serving at the free dispensary

those who were abundantly able to pay for what they received. Our leading physicians and surgeons connected with these charitable institutions were more or less responsible for this state of things. He freely admitted that the case presented some difficulties, but surely new rules or more conscience, care, and discrimination were demanded. A most public and flagrant instance was furnished by the course of the board of health in its recent crusades of wholesale vaccination. There was, perhaps, little to be said of the work in Cherry Street and the like; but when it came to the free vaccination of the employees of prosperous business houses and rich corporations, and even business men themselves, the preposterous extent of the abuse and the consequent professional injury were seen at a glance. Such things could not occur did not physicians lend themselves to the scheme. He would prefer to believe it was done thoughtlessly, and he trusted that a declaration on the subject by the society would do much toward correcting such abuses.

Again, whenever a man put a low estimate on the importance and value of his own services, he so far lowered the medical standard, and thereby injured his professional brethren. Why reputable physicians should consent to serve rich corporations for nominal returns would seem hard to explain. But the anomaly existed. Many instances illustrative of those misplaced favors would occur to the minds of those present. In this regard the legal profession set a different example and one worthy of emulation. So far from belittling the importance of his own service, to the injury of his profession, the corporation lawyer exacted the highest fees and those commensurate with the interests involved. Why should the physician adopt an opposite course?

Another point to which he called attention was the matter of expert medical testimony in the courts. Comparatively recent events in connection with some trials of peculiar public interest had given this subject special prominence. His impression was that the result had been to discredit the value of expert testimony in general. It was evident that in the case of conflict or apparent discrepancies between the testimonies of reputed experts, neither the public, the ordinary jury, the bar, nor indeed the bench, had the special training to discriminate between true and false and to estimate duly the scientific value and the proper influence of the facts in a given case. The result was to create an impression of vagueness and a natural distrust of medical science. Such a matter, at first thought, might seem beyond the power, if not the province, of the society, but he would suggest that it was not really so. Both in the interest of civil justice and in that of the profession the evil might be rectified by the appointment from the society of a commission or jury of competent physicians to review and to pronounce upon the entire expert testimony in each given case. The summing up by such a commission would in the highest degree inspire confidence and serve the ends of justice. Of course such a procedure must be authorized by statute law.

There was another very important consideration affecting the society's relation to the profession at large, the State, and the community. It was an undeniable principle that with a responsibility of any sort must go the power and the supervision in the matter under consideration. Now, since this was the legally instituted and recognized Medical Society of the County of New York, and the body in which inhered the major responsibility for whatever action might be taken affecting medical affairs, it followed that all legislation relating to the practice of medicine, either as between physicians or between the physician and the community, should be first submitted to the society and receive its approval before it was transmitted to the State society or proposed for enactment and

law. In view of all that had been said upon this subject and of the necessities of the case, the propriety of adding to the standing committees one on Legislation, to the special care of which might be committed all such matters, often among the most important upon which the society might be called to take action, must be manifest.

Efforts to Limit the Spread of Tuberculosis and Diphtheria.—The following report by Dr. Cyrus Edson, chairman of the Sanitary Committee of the Board of Health of the City of New York, was adopted by the board on the 13th inst.:

The report of Dr. Hermann M. Biggs, the bacteriologist of this department, relative to tuberculosis is, in the opinion of the chairman of the sanitary committee, timely and well advised. The subject is well summed up in the three facts relative to the disease set forth, to wit:

First, tuberculosis is a contagious disease and is distinctly preventable. Second, it is acquired by direct transmission of the tubercle bacilli from the sick to the well, usually by means of the dried and pulverized sputum floating as dust in the air. Third, it can be largely prevented by simple and easily applied measures of cleanliness and disinfection.

The following recommendations based upon the foregoing premises are approved and offered to the board for its consideration:

First, that a circular be prepared for distribution among the people, setting forth the danger of contagion from tuberculosis and the fact that the discharges from the lungs of tubercular patients are dangerous not only to others but also to the patient afflicted, and also setting forth the danger of expectorating in places where the sputum is liable to be dried and carried by the air in the form of dust.

Second, that physicians and other persons to whom the knowledge of the existence of a case of tuberculosis may come be requested to report to this department all such cases within seven days of the time when such sick person comes under observation.

Third, the medical sanitary inspectors should, as a part of their duty, investigate cases of the disease reported and take specimens of the sputa for diagnostic purposes, as is done in cases of diphtheria. These specimens should be transmitted to the division of bacteriology for examination, and the division of bacteriology should be properly equipped for such examination, for the purpose of obtaining definite knowledge upon which the proper sanitary surveillance of those suffering from tuberculosis can be based. Upon the verification of the diagnosis, the inspector should visit the physician reporting each case and request him to fully instruct his patient and the persons with whom he is in contact concerning the nature of the disease and the danger of its transmission. If the case is reported by laymen, or if the physician prefers that the inspector should assume the aforesaid duty, then the inspector should personally perform this service.

Fourth, the following preamble and resolution should be adopted and sent to each of the general hospitals and to the Commissioners of Charities and Correction:

Whereas, Tuberculosis is a contagious disease and is distinctly preventable; and

Whereas, It is acquired by the direct transmission of the tubercle bacilli from the sick to the well, usually by means of the dried and pulverized sputum floating as dust in the air; and

Whereas, It can be largely prevented by simple and easily applied measures of cleanliness and disinfection, and to some extent by segregation of those suffering from it; be it therefore

Resolved, That this board urge upon hospital authorities of

the city of New York the importance of separation so far as possible in the hospitals of this city of persons suffering from pulmonary tuberculosis from those affected with other diseases, and urge that proper wards be set apart for the exclusive treatment of this disease; and be it further

Resolved, That the Commissioners of Charities and Correction be recommended to take such steps as will enable them to have and control a hospital to be known as the Consumptive Hospital, to be used for the exclusive treatment of this disease, and that, as far as practicable, all inmates of the institutions under their care suffering from tuberculosis be transferred to this hospital.

Fifth, it is recommended that the disinfecting corps disinfect places where evidence of infection from tuberculosis exists, whenever in the opinion of the chief inspector of contagious diseases it shall be necessary.

Sixth, it is recommended that suitable receptacles for sputa (cuspitors) be provided and properly cared for in all places where persons are brought together or caused to congregate for any purpose, especially in factory buildings.

The board has issued the following circular to physicians, prepared by Dr. Hermann M. Biggs:

During the last few months a series of investigations has been made in the bacteriological laboratory of the Health Department to determine how long the Loeffler bacilli remain in the throat after the disappearance of all false membrane in cases of diphtheria. The results obtained are extremely significant, and have caused the department to establish a new rule regarding the discharge from observation of patients who have suffered from diphtheria and regarding the time of disinfection of the premises.

During the past three months four hundred and five cases of true diphtheria have been subjected to repeated bacteriological examinations performed at short intervals during the course of the disease and during convalescence. In all of these cases cultures were made at the beginning of the disease, again after the lapse of three or four days, and finally at short periods after the complete disappearance of the false membrane, until the throat was found to be free from the diphtheria bacillus. In 245 of these 405 cases the diphtheria bacilli disappeared within three days after the complete separation of the false membrane; in 160 cases the diphtheria bacilli persisted for a longer time—namely, in 103 cases for seven days, in 34 cases for twelve days, in 16 cases for fifteen days, in 4 cases for three weeks, and in 3 cases for five weeks after the time when the exudation had completely disappeared from the upper air-passages. In many of these cases the patients were apparently well many days before the infectious agent had disappeared from the throat. These results show that in a considerable proportion of cases persons who have had diphtheria continue to carry the germs of the disease in their throats for many days after all signs of the disease have disappeared. No doubt the disease is largely disseminated by these persons, who are apparently well and who mingle with others while their throat secretions still contain the diphtheria bacilli.

These experiments have led the Health Department to adopt the rule that no person who has suffered from diphtheria shall be considered free from contagion until it has been shown by bacteriological examination, made after the disappearance of the membrane from the throat, that the throat secretions no longer contain the diphtheria bacilli, and that until such examinations have shown such absence the person must remain isolated and under observation. Disinfection of the premises, therefore, will not be performed by the department until examination has shown the absence of the organisms.

Secondary cultures, as in the case of primary cultures, may

be made by the attending physician, if he so desires; otherwise they will be made by the inspector of the district in which the case occurs. This applies only to cases occurring in boarding houses, hotels, and tenement houses, not to those occurring in private houses.

In this connection an interesting observation has been made showing that in diphtheria cases which have been subjected to frequent irrigation with antiseptic solutions from the beginning of the disease the bacilli, as a rule, disappear far more rapidly than in those in which such irrigations have not been employed. The department would feel grateful for any data which physicians of the city may furnish as to the treatment employed in each case, in order that more reliable conclusions may be reached as to the best mode of treatment.

The New York Academy of Medicine.—The programme for the meeting of Thursday evening, the 21st inst., included a paper by Dr. H. G. Piffard, on The Babcock Test as a Means of Determining the Commercial and Nutritive Value of Milk (Bovine and Human); and one by Dr. Thomas M. Pooley, on Asthenopia not Dependent upon Errors of Refraction or Insufficiency of the Ocular Muscles.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 27th inst., Dr. Emil Mayer is to read a paper on The Treatment of Follicular Pharyngitis; and Dr. W. H. Park, one on The Bacteria present in the Human Throat and their Relation to Acute Throat Inflammations.

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 28th inst., Dr. George M. Edebohl will read a paper on The Radical Cure of Umbilical Hernia; and Dr. Henry C. Coe, one on Hysterical Manifestations due to Alcohol.

Guaiaicol.—At a recent meeting of the Paris Society of Biology, a report of which we find in the *Union médicale* for November 30th, M. Gilbert and M. L. Maurat presented a communication in which it was remarked that guaiaicol was one of the derivatives of creasote that had been most experimented with. The liquid guaiaicol found in commerce, the authors went on to say, meaning the guaiaicol obtained from creasote, was far from being almost a chemically pure product. It was a mixture of cresylol, guaiaicol, and creasote in varying proportions; it might contain fifty per cent. of guaiaicol, but sometimes it contained no more than twenty or even ten per cent. Pure guaiaicol occurred in the form of hard, white rhomboidal crystals, almost insoluble in water, but soluble in alcohol, in oil, and in anhydrous glycerin. The taste of guaiaicol is slightly sugary, with a pungent and burning after-taste. Pure guaiaicol has been prepared synthetically by Behel and Chouy, and it was this product that the authors had used in their experiments. The amount of guaiaicol, dissolved in glycerin or olive oil, necessary to kill a guinea-pig weighing a kilogramme is between five and fifteen grains, given hypodermically; it takes twenty-three grains given by the mouth to produce the same result. With a liquid guaiaicol obtained from Germany, containing forty-six per cent. of guaiaicol, 3.6 per cent. of cresylol, and 50.5 per cent. of cresol and homocresol, from fifteen to twenty grains were found necessary to kill a guinea-pig weighing a kilogramme. This product, therefore, is less poisonous than pure guaiaicol, but it contains less than half of the active principle. The chief effects of poisoning with guaiaicol are agitation and then enfeeblement with retardation of the heart's action and of the breathing. Most of the secretions are increased in quantity, especially the lacrymal secretion. At the moment of death, which occurs during coma, the thermometer may fall as low as 68° F. [*jusqu'à 20°*]. The biological effects of liquid guaiaicol resemble those of solid

guaiaicol, but the reduction of temperature and the increase of the secretions are less pronounced. The authors have used synthetic guaiaicol for several months in a certain number of cases of consumption in various stages. They have given it in daily quantities of from six to eighteen grains, in the form of pearls, each containing three grains of the active principle in oily solution. As a general thing, the stomach bears the drug well if it is taken immediately before eating. Sometimes large doses cause vomiting, but this may be avoided easily by testing the patient's susceptibility by administering progressively increasing doses of the synthetic preparation.

The Use of Thiol in Dermatology.—The *Nouveaux remèdes* for November 24th contains an abstract of an article by Dr. Laughin, published in the *Allgemeine medicinische Centralzeitung* and summarized in the *Centralblatt für die gesammten Therapie*, on the use of thiol in skin diseases. The journal first mentioned introduces the subject by stating that thiol is a dark-brown substance of agreeable odor and neutral reaction, readily soluble in water, less soluble in alcohol and in ether, and found in the market either dry or in thirty-per-cent. watery solution. Dr. Laughin has used thiol in the treatment of eczema of the nostrils, follicular eczema of the nasal orifices, and eczema of the upper lip. After having softened and removed the crusts, opened the pustules, and cleansed the entire region antiseptically, he applies an ointment consisting of four parts of thiol and thirty parts of lanolin. Thiol is used as a diapsma in cases of intertrigo; in papular eczema the solution is used. In acne vulgaris the affected portion of skin is covered twice a day for from ten to fifteen minutes with an ointment of five parts of thiol and thirty parts of lard. Thiol has been shown to be very useful also in acne rosacea, zoster, carbuncle, and boils. It is given internally in doses of from half a grain to fifteen grains three times a day. The advantages of thiol over ichthylol are that it does not give rise to any disagreeable after-taste, is odorless, and does not disturb the digestion.

The late Dr. William F. Hutchinson.—At a meeting of the executive council of the American Electro-therapeutic Association the following resolutions on the death of Dr. William F. Hutchinson, of Providence, R. I., were unanimously adopted:

Whereas, It becomes our painful duty to announce the death of Dr. William F. Hutchinson, one of the foundation fellows of the American Electro-therapeutic Association, as well as the first vice-president of the same; and

Whereas, In his death we lose a warm and faithful friend, a valued associate, and an accomplished member of the profession; therefore be it

Resolved, That this association desires to place on record its appreciation of his genial spirit, his active co-operation in the work of the association, and his deep interest in the scientific questions relative to his chosen profession.

Resolved, That we express our sincere regret and heartfelt sorrow at his death.

Resolved, That we tender to his sorrowing family an expression of our profound sympathy in their great loss.

Resolved, That a copy of these resolutions be sent to the bereaved family and to the medical journals and that they be spread upon the minutes of the association.

[Signed.]	ANGUSTIN H. GOELT, M. D.,	} Executive Council.
	W. J. MORTON, M. D.,	
	G. BETTON MASSEY, M. D.,	
	ROBERT NEWMAN, M. D.,	
	CHARLES R. DICKSON, M. D.,	
	WILLIAM J. HERDMAN, M. D.,	President.
	MARGARET A. CLEAVES, M. D.,	Secretary.

Original Communications.

ON THE ÆTIOLOGY OF APPENDICITIS.

By EUGENE HODENPYL, M. D.,

FIRST ASSISTANT IN PATHOLOGY,
COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA COLLEGE;
AND PATHOLOGIST TO ROOSEVELT HOSPITAL, NEW YORK.

WHILE the anatomy of the vermiform appendix, including its very many abnormal positions, has been recently carefully investigated by Bryant (1), Turner (2), Clado (3), and others, and while the surgical aspects of appendicitis have been very extensively written about, comparatively little has been done on its ætiology. This article records the observations that I have made in eleven cases. At the suggestion of Dr. McBurney, I have made bacteriological studies on the exudates which have occurred in some of the cases recently operated on by him. At the same time, I have studied various atypical forms and positions of the appendix which seem to have an important bearing in the ætiology of appendicitis.*

Bacterial Factors.—At the time these studies were undertaken there were few reported bacteriological observations on appendicitis; but recently I have found records of bacteriological examinations which have been made in twenty-four cases. Of these twenty-four cases, two were reported by Welch (4), one by Robb (5), three by Clado (3), four by Adenot (6), one by Fraenkel (7), one by Malvoz (8), four by Ekehorn (9), and eight by Fowler. In each of these cases the *Bacillus coli communis* was found in the exudate, and was not associated with any other species except in one of Welch's cases, in which a streptococcus alone was found, and in one of Fowler's, in which the *Bacillus pyogenes fetidus* was found in addition to the *Bacillus coli communis*.

THE WRITER'S STUDY.—1. *Technique.*—The exudate was collected by means of cotton swabs such as have been recently described and figured by Dr. Park (10). The swab consists of a bit of absorbent cotton wound on a steel rod four inches in length, the end having been previously roughened to prevent the cotton from slipping. The swab is put in an ordinary test tube plugged with cotton and the whole is thoroughly sterilized by dry heat. When thus prepared they may be kept indefinitely and ready for use in a clean jar. They may be conveniently carried as required in a small wooden box.†

The exudate was collected as soon as it came into view after the abdomen was opened and before the appendix was disturbed or the exudate subjected to contamination. The bacteriological examination was commenced in most

cases immediately thereafter, and in all cases within a few hours after the operation.*

2. *Description of the Cases examined by the Writer.*—CASE I.—October 13, 1892, man, aged twenty-one years, brought to the hospital almost moribund with general peritonitis. Operation soon after admission, but death occurred very soon thereafter. Autopsy, fifteen hours after death, showed general peritonitis, the cause of which was shown to be from extensive necrosis of the appendix. Nothing but the small ragged stump remained.

Bacteriological examination of a portion of the pus collected by a swab from the right iliac fossa showed *Bacillus coli communis* in pure culture.



FIG. 1.—Appendix of a new-born child with a very short mesentery.

CASE II.—Young woman; had been suffering from pain in the abdomen, fever, vomiting, prostration, etc., for about six weeks. The attack came on suddenly, but after two weeks greatly improved; but the symptoms again reappeared after a few days. Patient died soon after admission to the hospital without operation. Autopsy, nine hours after death, showed extensive inflammation and necrosis of the appendix, a large sinus behind the ascending colon filled with pus, and a large abscess of the right lobe of the liver. Bacteriological examination, from the pus about the appendix and from the abscess of the liver, showed in both *Bacillus coli communis* in pure culture.

CASE III.—November 10, 1892. Pus from a case of acute appendicitis occurring in Dr. McBurney's private practice. Bacteriological examination of the exudate showed *Bacillus coli communis* in pure cultures.

CASE V.—November 26, 1892, man, aged forty years; first attack of an acute appendicitis operated upon on the twelfth day of the disease. Large abscess with well-marked fecal odor; appendix not found.† Bacteriological examination: cultivations from the abscess showed *Bacillus coli communis* in pure culture.

* In each case stained cover slips were prepared from the swabs and glycerin-agar and gelatin plates were made.

† Bacteriological examination: culture from the exudate showed nothing but *Bacillus coli communis*.

* One of the cases was kindly furnished me by Dr. Park, two were found at autopsy, while the remainder were in persons operated on by Dr. McBurney, and I wish to offer him my thanks for the material which he kindly placed at my disposal.

† This method of collecting fluid material for bacteriological work, which was originally suggested by Prudden, has proved so eminently satisfactory in this, as well as along other lines of investigation, that its use during surgical operations and post-mortem examinations can be thoroughly recommended.

CASE VI.—December 12, 1892, woman, aged nineteen years; first attack of acute appendicitis operated upon on the fifth day. Appendix was perforated at the tip and was surrounded by an abscess shut off from the general peritoneal cavity. Bacteriological examination of exudate and contents of the appendix showed in both the *Bacillus coli communis* and the *Streptococcus pyogenes*.

CASE VII.—January 7, 1893, man, aged thirty years. History of repeated attacks of appendicitis. At the operation about twenty ounces of pus was found about the appendix, which was gangrenous. Bacteriological examination showed *Bacillus coli communis* in pure culture.

CASE VIII.—January 23, 1893, man, aged thirty-eight years; operation during third attack of appendicitis. Present attack lasted three days. About an ounce of foul-smelling pus surrounded the appendix, which showed commencing gangrene near the base. Bacteriological examination of cultures from the exudate showed nothing but the *Bacillus coli communis*.

CASE IX.—February 4, 1893, man, aged twenty-two years. Appendicitis of three weeks' duration. There was a large abscess, but the appendix was not found.* Bacteriological examination: *Bacillus coli communis* was found in the abscess in pure culture.

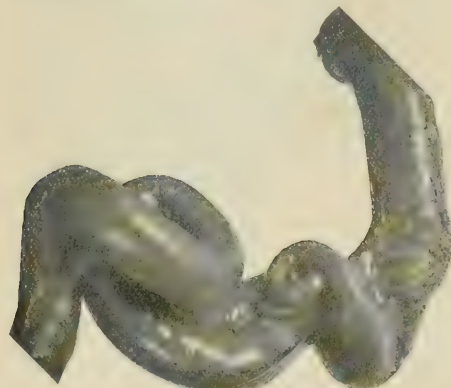


FIG. 2.—Appendix of a child three days old, sharply curved upon itself and bound down by adhesions.

CASE X.—February 17, 1893, boy, aged ten years; appendicitis of seven days' duration. First attack. There was perforation of the appendix and a large abscess extending as high up as the liver. Bacteriological examination: exudate contained *Bacillus coli communis* in pure culture.

CASE XI.—March 28, 1892, girl, aged ten years. First attack of appendicitis; operation on the ninth day. There was a very large abscess; appendix not found. Bacteriological examination: cultures from the abscess were *Bacillus coli communis* in pure culture.

Résumé of all the Bacterial Studies.—With the twenty-four cases of exudative appendicitis already referred to above and my own eleven cases, we have now thirty-five in all in which a bacteriological examination of the exudate has been made. In thirty-two of the thirty-five cases the *Bacillus coli communis* was the only germ isolated. In

some cases we have found in the walls of the appendix, and surrounded by exudate, colonies of this germ. In one case a few colonies of the streptococcus developed in association with this bacterium. In one case the streptococcus was the only species found. These streptococci corresponded in biological characters with the *Streptococcus pyogenes*. In one case the *Bacillus pyogenes foetidus* was found in addition to the *Bacillus coli communis*.

Significance of the Bacillus Coli Communis in the Exudation of Appendicitis.—The diagnosis of this bacillus, notably from the *Bacillus typhosus*, has received much attention of late from many observers; and those interested in this matter should consult the elaborate monograph of Wurtz (11). I shall not in this connection recount the many biological characters of this so-called "colon bacillus," nor enter here into the question of the possible multiplicity of varieties which this germ is believed by many to present. In my studies the variations were so slight that I regarded them as within the limits of the well-known biological characters of the *Bacillus coli communis* by which the germ is recognized in artificial culture media.

The question now arises as to the significance of the *Bacillus coli communis* in the aetiology of these cases of appendicitis. It is a natural inhabitant of the intestine. Can its presence in the exudate outside of the intestine be regarded as proving that it caused the lesion, or may it be in these cases but a secondary or adventitious or unimportant factor? In order to understand its exact significance it is necessary that we study most carefully certain facts concerning the bacillus itself.

These facts bearing on the significance of the *Bacillus coli communis* in these cases may be conveniently arranged into several groups—i. e., facts concerning—

1. The species of bacteria inhabiting the normal and diseased appendix.
2. The presence of bacteria in the normal abdominal cavity.
3. The pathogenic power of the *Bacillus coli communis*, including its difference in virulence when obtained from different sources.

1. *Bacterial Contents of the Normal and Diseased Appendix.*—In five cases gelatin and agar plates were made from the contents of normal appendices. In fifteen cases cultivations were made from appendices the seat of acute exudative inflammation.* In every one of these twenty cases, except one case (VI), the *Bacillus coli communis* was obtained in pure culture (nothing else grew). In Case VI, as has been already stated, associated with the *Bacillus coli communis*, both in the abscess and in the interior of the appendix, a moderate number of colonies of *Streptococcus pyogenes* developed.

In a single additional case the contents of an appendix of a stillborn child gave, in the cultures, a negative result. This observation is in accord with those of Escherich (12), who has found that the *Bacillus coli communis* does not begin to appear in the human intestinal tract until birth or until nursing has begun.

* Eleven of these cases are those just described; the remainder are cases of appendicitis in which the exudate was confined to the lumen of the appendix.

* In certain cases it was not thought advisable to make a very extended search for the appendix during the operation for fear of disturbing the delicate adhesions separating the abscess from the general abdominal cavity.

Cultivations were made in a number of instances from the contents of the healthy intestines and from healthy faeces, and in each a pure culture of *Bacillus coli communis* was the result. While a considerable number of different species of bacteria have been found in the healthy intestines, this bacterium occurs so very much more abundantly that it is frequently the only species obtained on cultivation.

2. *Concerning the Presence of Bacteria in the Normal Abdominal Cavity.*—In ten cases cultivations were made of material collected by the swab from the normal abdominal cavity in the region of the appendix after death from a variety of causes.

The autopsies were made at periods varying from one to twenty-two hours after death. In nine of the ten cases the result was negative; nothing grew in the cultures. In one case, from an autopsy made twenty-two hours after death, a few colonies of *Bacillus coli communis* developed. Wurtz and Hermann (13) and Welch (4) have found that after death, or at least after decomposition has fairly commenced, *Bacillus coli communis* may become widely distributed. Thus this bacterium has been found in post-mortem examinations in the heart's blood, liver, spleen, kidneys, etc., unassociated with lesions.

3. *The Pathogenic Power of Bacillus Coli Communis.*—The evidence that the germ is capable of being the cause of morbid process in various parts of the body is of two kinds: (a) Its occurrence in connection with lesions unassociated with any other micro-organism; and (b) the result of experiments on animals with the pure culture of the germ.

I examined two cases of general peritonitis following perforation—one of the stomach, the other of the intestine—and obtained on cultivation the "colon bacillus" in pure culture. In one case of peritonitis of unknown origin I found *Streptococcus pyogenes* in pure culture. In four cases of peritonitis following suppurative salpingitis I found in one the streptococcus, in the three others the *Staphylococcus pyogenes aureus*. In three cases of chronic salpingitis, without peritonitis, no bacteria of any kind developed in the cultures. While the results of these observations are too few in number to establish an absolute rule, yet they bear out the general belief, notably held by Welch, that the occurrence of the *Bacillus coli communis* in inflammatory exudations indicates a primary lesion of the intestines.

The number of cases recorded by others in which this bacillus has been found in connection with many pathological conditions is so large that it seems necessary to refer only to some of the more important. Veillon and Jayle (14) found the bacterium in pure culture in a dysenteric abscess of the liver. Barbacci (15) found it in pure culture in six cases of general exudative peritonitis following perforation of the intestine, and in one case of perityphlitic abscess.

Malvoz (8) found it in six cases of general exudative peritonitis following intestinal perforation. His cultures were obtained post mortem. All were made within thirty hours after death, and in all of his cases this was the only species found.

Muscattello (16) reports a case of perirectal abscess which

contained *Bacillus coli communis* in pure culture, which, when inoculated subcutaneously into guinea-pigs, resulted in abscesses containing thick, white, stinking pus, from which the bacillus was again obtained in pure culture.

Marfan and Leon (17), in two cases of death from ulcerative colitis, found this bacillus in all the organs.

Laurelle (18) found in two cases of peritonitis caused by perforation of strangulated crural hernia the colon bacillus in each.

In both cases the autopsies were made within five hours after death.

Gilbert and Girode (19) record two cases of suppurative inflammation of the gall bladder, which contained in each case the bacillus in pure culture.

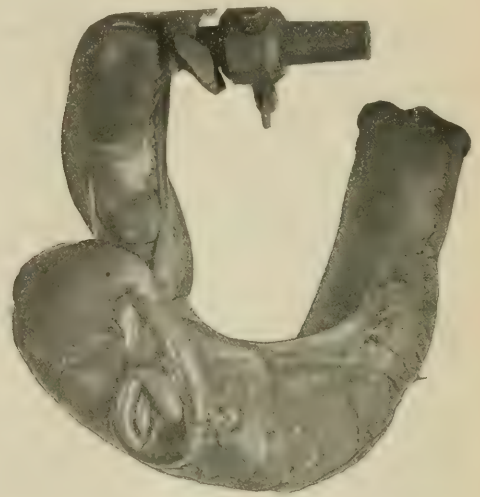


FIG. 3.—Appendix of a child eleven days old. It is adherent throughout its entire length and sharply bent at its lower end.

Welch (4) has found it also in pure culture in three cases of peritonitis due to ulceration of the intestines, but without perforation; also in one case of ovarian abscess adherent to an ulcerated cancer of the rectum. Welch also states that he has only found *Bacillus coli communis* twice in other viscera in which there was no demonstrable lesion of the intestines.

Rossi-Doria (20) examined twenty fatal cases of epidemic diarrhoea of children. The autopsies were performed usually within twelve hours after death, and never later than twenty hours. Cultures were made regularly from the liver, spleen, kidney, and the enlarged lymphatic lymph nodes. These all showed the presence of the colon bacillus. Wyss (21) found it in a very severe case of catarrhal enteritis in the liver, spleen, kidney, Peyer's patches, and mesenteric lymph nodes.

A. Fraenkel (22) examined thirty-one cases of peritonitis from various causes, and in nine of them found the *Bacillus coli communis* in pure culture; and of these cases, all were accompanied with intestinal lesions.

Cases of acute meningitis in which the germ has been isolated have been described by Neumann and Schaeffer, Roux, Adenot, Netter, Balp, and Sevestre and Gaston. It has also been found in cases of ulcerative malignant endocarditis by Netter and Martha, in thyreoiditis by Tavel, in cystitis by Clado, Achard, Rodet, Roosing, and many others. It has been found in a case of suppurative arthritis by Sevestre and Gaston. For a detailed description of these cases of meningitis, endocarditis, cystitis, and arthritis, consult the monograph of Maicaigne (23).



FIG. 4.—Adult appendix, six inches in length: pervious throughout, but firmly adherent to the gut and covered over with delicate adhesions.

It is noteworthy that in a large majority of the foregoing cases in which the colon bacillus has been found in the inflammatory exudate, in other situations, outside the intestines, there have been destructive lesions of the intestinal wall. Indeed, the presence of this bacillus in other regions of the body seems to be almost always associated with intestinal lesions.

The presence of this bacillus in the general abdominal cavity is to be expected where there is perforation of the intestines; ulceration of the intestinal wall, of course, facilitating the escape of the germ. Certain malpositions and structural changes in the gut facilitate the escape of bacteria through the intestinal wall, without either ulceration or perforation, as has been shown by Maicaigne (23), who found the colon bacillus in the sac in cases of strangulated hernia. Recently Arnd (24) has demonstrated the escape of bacteria through the wall of the gut experimentally in rabbits. According to Arnd, who experimented especially with the *Bacillus pyocyaneus* and *Bacillus prodigiosus*, if a portion of a rabbit's intestine be constricted by means of a rubber band,

bacteria pass rapidly through the wall as soon as stasis has been induced in the blood-vessels of the constricted gut. Furthermore, Clado (3) professes to have demonstrated the passage of *Bacillus coli communis* through the wall of a strictured appendix without perforation or ulceration.

It will be noticed from the above recorded cases that the *Bacillus coli communis* has been more often found in the exudate of peritonitis than in exudative inflammation elsewhere. It has long been known that sterilized faeces, etc., when thrown into the peritoneal cavities of animals in reasonable amounts usually do no harm. When, however, certain living micro-organisms escape through the wall of the gut, either with or without a solution of continuity, inflammation is at once produced. If now, in addition to the facts already adduced, we are able to prove experimentally that the germ possesses pathogenic properties, we shall then have strong evidence that this bacterium was actually the cause of the inflammation in the cases just referred to.

(b) *Results of Inoculation Experiments in Animals with Pure Cultures of Bacillus Coli Communis.*—Escherich (12), who first described the germ, found that its inoculation in mice gave negative results. In guinea-pigs sometimes no lesions followed its inoculation, but more often abscesses developed at the site of inoculation. Intravenous injection was usually followed by death within twenty-four hours, with intense catarrhal lesions of the intestines, swollen Peyer's patches, etc. There was also usually intense congestion of the peritonæum, with bloody fluid in the peritoneal cavity. The germ was found in the blood and throughout the solid viscera.

Laurelle (18) found that *Bacillus coli communis*, suspended in salt solution, when inoculated into the peritoneal cavity, gave negative results. When, however, the germ was suspended in simple sterilized water, or mixed with ox gall, etc., the animals died quickly, with intense peritonitis. He also found that neither the sterilized water nor the ox gall alone would cause peritonitis when injected into the abdominal cavity. Blackstein (25), Gilbert and Girode, and many others have demonstrated the pathogenic power of *Bacillus coli communis*, abscesses, sepsis, etc., having usually followed its inoculation; but it has been noticed that the results obtained by different observers have seemed to vary within rather wide limits.

The differences which have been observed in the results after inoculation appear to have depended upon the difference in dose, species of animal used, the nature of the inoculation, whether subcutaneous, intraperitoneal, or intravenous, and especially upon the age of the culture and the source from which it was obtained—i. e., from faeces or from inflammatory exudates. Formerly the difference in the results obtained after inoculation of animals with pure cultures of bacteria was ascribed largely, if not entirely (the dose and the other conditions being the same), to the difference in susceptibility of the animals. Latterly we have begun to learn more of the difference in virulence in the bacteria themselves. Since Pasteur first showed that the virulence of the *Bacillus anthracis* could be very markedly altered by slight variations in the temperature at which the germ was grown, it has been observed that with

many other species of bacteria we are able to alter, within certain limits, not only the degree of virulence, but other biological characters as well. It has been claimed, notably by Maicaigne (23), that *Bacillus coli communis* obtained from healthy intestines is very decidedly less virulent than when obtained from lesions in the production of which it is presumably the cause. He also makes the very interesting observation that there is a decided difference in virulence of cultures from healthy faeces and from diarrheal stools. This last observation, if confirmed, will throw an important light on the aetiology of certain of the intestinal lesions. Ekborn (9) likewise has observed a very great difference in the virulence of cultures obtained from the exudate in different cases of appendicitis. In one case they were obtained during an acute attack with perforation, suppuration, etc., and were found when inoculated into animals to be exceedingly virulent. Other cultures were obtained from a milder case which was operated on during the quiescent stage, and in these the virulence was much less marked.

It has been observed, as in the case with many other species, that the virulence of *Bacillus coli communis* becomes attenuated by long cultivation on artificial culture media. Experiments now going on in the Laboratory of the College of Physicians and Surgeons, and shortly to be published by Dr. Alexander Lambert, confirm the view that the germ obtained from faeces is less virulent than those obtained from pathological lesions of which they were presumably the cause.

It is evident from the facts now brought forward that, while the *Bacillus coli communis* under normal conditions in the gut is harmless, it may become pathogenic when placed under abnormal conditions—*e. g.*, outside the intestinal canal. Different specimens of the germ may not all be of the same degree of virulence; and there is some evidence that those obtained from inflammatory exudates are more virulent than those obtained from natural sources.

We as yet know but little of the exact conditions under which the virulence of this germ may become increased or diminished. A change in its situation in the body may perhaps effect changes in its pathogenic powers. This change in situation appears to be of most frequent occurrence in the appendix. It will be seen later that very frequently its lumen becomes more or less occluded, when, if the occlusion be sufficiently complete, the pressure of its confined contents may force the bacillus into the tissues and through its wall.

Recapitulation.—1. The *Bacillus coli communis* is normally present in the intestinal canal after birth, but it is never found during life outside the intestinal canal in any of the other viscera, so far as is known, without being accompanied by lesions.

2. We have seen that the *Bacillus coli communis* has been found in the exudate in thirty-four out of thirty-five cases of exudative appendicitis, and in thirty-one of these it was found unassociated with any other germ.

3. The *Bacillus coli communis* has been found as the only species of bacteria in connection with a variety of inflammatory and necrotic conditions other than appendicitis.

These have almost always been associated with a demonstrable lesion of the intestinal wall, and there is evidence that under certain conditions the germ may pass through the intestinal wall without a solution of continuity. It has been abundantly shown that the germ is highly pyogenic.

4. Inoculations into animals of pure cultures of this bacillus result in inflammation, in the formation of abscesses, and sometimes produce general septic infection or intoxication.

It seems that in exceptional cases the disease may be caused by the ordinary "*pyogenic bacteria*"—*i. e.*, the *Streptococcus pyogenes*, and the *Staphylococcus pyogenes aureus*, etc., as well as by the bacterium just considered. We have the record of one case in which the *Streptococcus pyogenes* was the only species isolated from the exudate.

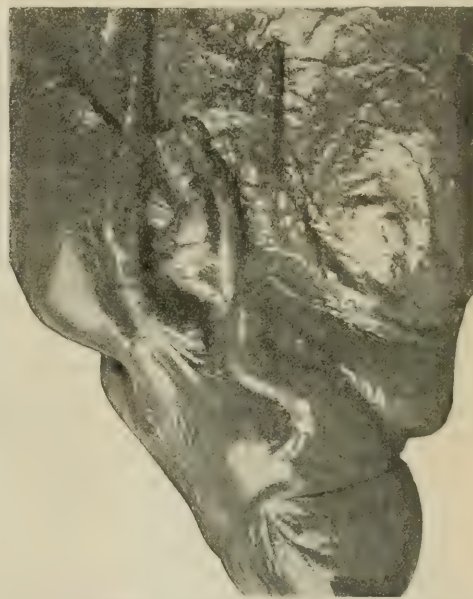


FIG. 5.—Adult appendix, showing a twist in the middle portion resulting in atrophy of the lower half, which is also adherent.

Other Probable Factors in the Production of Appendicitis.—In addition, there may be still other contributing if not direct factors in the production of appendicitis. It is said to have been caused by *actinomyces*; but as yet I have not been able to find a single case reported in which *actinomyces* have been actually found in disease of the vermiform. At any rate, its occurrence is of such great rarity that it may be regarded more as a pathological curiosity than as an aetiological factor in appendicitis. *Tubercular* and *typhoid ulcers* sometimes may be associated with appendicitis. Tubercular and typhoid ulceration of the vermiform appendix is not an uncommon occurrence in tuberculosis of the intestinal canal and in the course of typhoid fever. It is rarely, however, that either of these conditions are found in connection with that

group of symptoms and physical signs indicative of appendicitis. In none of my cases have I found tubercular or typhoid ulcers of the appendix, and indeed, while they are commonly held as being sometimes the cause, yet there are but few actual cases recorded. I may mention, in passing, the remarkable fact that typhoid, and especially tubercular ulcers of the intestinal tract, as is frequently the case with many other morbid processes, often bear no very proportionate relation to the severity of the physical symptoms. Tubercular ulcers of the intestine, and even extensive tubercular peritonitis, often give rise to almost no discomfort, and so similar lesions of the appendix are usually unattended by the usual indications of disease of this organ.

Concretions of various kinds blocking up the lumen of the canal were formerly regarded as the usual cause of appendicitis; but this view has since been largely abandoned by surgeons, although it continues to be the theory generally held by the laity. Fitz (26), in an analysis of some three hundred cases of appendicitis, found concretions in but five per cent., and Ribbert (27) found them thirty-eight times in four hundred autopsies, or about ten per cent. in persons with presumably normal appendices. Of these thirty-eight cases, there were twenty with more than one concretion—viz., four with two, eight with three, three with four, five with five. It can readily be conceived that a concretion when of large size or irregular shape may cause irritation or interference with the proper circulation and secretion of the appendix. The result of such interference may be sufficient to so alter the integrity of the mucous membrane as to allow of the escape of the bacterial contents into the tissues. In two of my cases of appendicitis concretions were found the pressure from which had caused ulceration, with perforation in one.

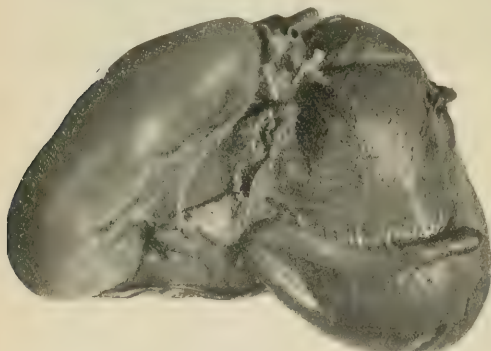


FIG. 6.—Adult appendix, bent at an acute angle, adherent throughout, and entirely cut off from the peritoneal cavity by adhesions passing over it.

Certain Anomalous Conditions of the Appendix, and their Relations to Appendicitis.—It seems to be an opinion widely held among surgeons that a large proportion of the cases of acute exudative appendicitis are associated with a more or less complete occlusion of the lumen of the appendix. In the cases which I have examined I have nearly always found an old stricture in the appendix.

We may get some light on the origin of this condition if we will but study certain peculiar forms of its development, arrangement, and evolution. It is generally conceded that the vermiform appendix, like the wisdom tooth, is gradually undergoing retrograde evolution, and it seems to be a fact that such organs are very prone to undergo inflammatory changes. In the case of the wisdom tooth, for instance, it is either altogether wanting, rudimentary, or, when present, often is the seat of inflammation. There seems to be no other structure in the body which, from its first differentiation, shows so many departures from the established norm as the appendix.

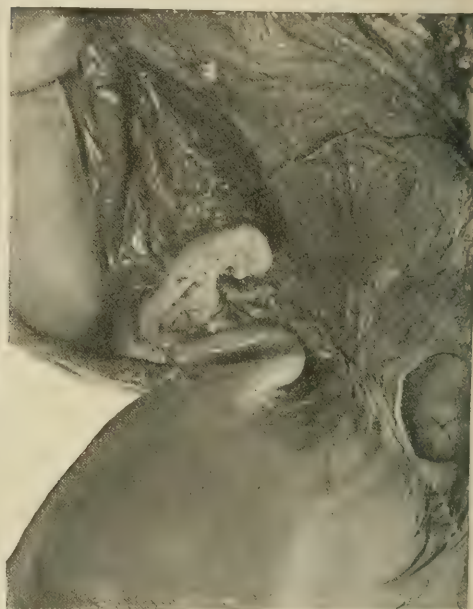


FIG. 7.—Adult appendix, bent at an acute angle, and also showing a twist in the middle portion, partially covered by adhesions.

When the appendix first begins to be differentiated from the cæcum, about the fifth or sixth month, it is situated at the center of what is to be the most dependent portion of the cæcum. At this time the cæcum is lying almost transversely high up in the abdominal cavity, with the appendix just beneath the liver. As the cæcum descends toward the right iliac fossa the external lateral portion develops more than the internal, consequently the appendix approaches the internal border. At birth, and for some little time thereafter, the base of the appendix is distinctly funnel shaped. As development proceeds, its dilated opening gradually grows smaller until adult age, when the cæcal orifice is somewhat smaller than the rest of the lumen of the appendix. Very frequently the lumen at this point is markedly constricted, and it is just at this point—viz., at the cæcal opening—that strictures of the appendix are, it seems, most often found in appendicitis.

Partial or complete occlusion of the lumen of the appendix is of very frequent occurrence in presumably healthy persons. Ribbert (27) found strictures ninety-nine times in his four hundred autopsies, or in twenty-five per cent. With regard to the age in which he found this condition, Ribbert gives the following: One to ten years, four per cent.; ten to twenty years, eleven per cent.; twenty to thirty years, seventeen per cent.; thirty to forty years, twenty-five per cent.; forty to fifty years, twenty-seven per cent.; fifty to sixty years, thirty-six per cent.; sixty to seventy years, fifty-three per cent.; seventy to eighty years, fifty-eight per cent. He did not observe them in children under five years. It has, however, been observed a number of times in the fetus, and I have twice seen strictured appendices in new-born children. Ribbert did not find total obliteration of the appendix under thirty years of age,

separate bands. These bands, like all fibrous-tissue adhesions, tend to contract and become shorter, so kinks, twists, of actual occlusions are produced. Hand in hand with the production of adhesions and the formation of strictures, the appendicitis itself tends to undergo atrophy. In Photograph No. 10 it will be seen that the appendix is shut off from the peritoneal cavity and is, in addition, completely obliterated, having dwindled into a slender fibrous cord.

Histological examination of these strictured appendices shows varying degrees of atrophy of the mucous membrane, and at the strictured point an absence of the mucous follicles and lymphoid nodules.

While the majority of cases of acute exudative appendicitis are associated with more or less complete stricture, there are yet other cases in which none exist. Indeed,



FIG. 8.—Adult appendix, bent in three places by connective-tissue adhesions. Adherent in parts.

but between the ages of sixty and seventy years he found it nine times in four hundred autopsies. The precise cause of this condition is not entirely clear. Fitz (26) and Birr-hoff (28) regard it as pathological. On the other hand, Ribbert takes the ground that while strictures are sometimes probably the result of former inflammatory processes, the majority are probably examples of partial retrograde evolution. With the latter opinion I entirely concur.

The accompanying series of photographs show some of the more common atypical forms of the appendix which I have found at autopsies, and illustrate the kinks and strictures. In none of my cases have I been able to find evidences of recent inflammation. We find the mesentery or mesocolon generally shortened or entirely wanting, so that the appendix becomes firmly attached to the neighboring parts or is adherent except at its tip. In addition we find delicate adhesions passing over the peritoneal surface sometimes evenly, and completely shutting it off from the general peritoneal cavity. (See photographs Nos. 4 and 6.) More commonly the adhesions are arranged in

these are sometimes of the most severe type. In some the appendix, almost from the very onset of the disease, may become gangrenous, but as yet I have not had an opportunity of examining such a specimen, and am consequently unable at this time to account for their occurrence.

The length of the appendix varies within wide limits, and this too seems to have a bearing on its retrograde evolution as well as on the ætiology of appendicitis. The longer the appendix, other things being equal, the more liable it is to inflammatory changes. In Ribbert's four hundred cases he finds the length varied from $2\frac{1}{2}$ ctm. to 21 ctm. Occasionally appendices are met with having even a greater length than 21 ctm. Also the length of the appendix varies considerably at different periods of life. Ribbert finds that the average absolute length at birth is $3\frac{3}{8}$ ctm.; up to five years, it is $7\frac{3}{8}$ ctm.; between five and ten years, it is 9 ctm.; between ten and twenty years, it is $9\frac{3}{4}$ ctm.; between twenty and thirty years, it is $9\frac{1}{2}$ ctm.; between thirty and forty years, it is $8\frac{3}{4}$ ctm.; between forty and sixty years, it is $8\frac{1}{2}$ ctm.; over sixty

years, it is $8\frac{1}{2}$ cm. Thus we see that the appendix reaches its greatest maximum length in early adult life, after which it tends to become shorter. It has also been noted that the relative length is much greater in infants than in adults. In the new-born, compared with the length of the large intestine, Ribbert estimates it to be 1 to 10, while in the adult it is 1 to 20.



FIG. 9.—Adult appendix, short and dilated, which was entirely concealed between folds of intestine, where it was firmly bound down by adhesions and shut off from the general peritoneal cavity.

Whether these atypical forms of the appendix are to be regarded as of pathological origin, or as examples of retrograde evolution, although exceedingly interesting from a biological standpoint, is a matter of no practical importance. The fact is that there is no other portion of the alimentary canal which is so exceedingly liable to become the seat of exudative inflammation.

Conclusions.—It is evident from these studies that several factors must be taken into account in considering the etiology of appendicitis. In the first place, the vermiform appendix of very many individuals is an especially vulnerable region of the intestinal tract, because it is especially liable to attacks of acute exudative inflammation. Thus strictures, either the result of old inflammation or the result of retrograde evolution; adhesions, drawing the appendix into abnormal positions, producing kinks, twists, etc., of its lumen; ulceration, from whatever cause; atrophy of the mucous membrane, concretions, and malpositions—may apparently act as predisposing causes in appendicitis. Such altered conditions may interfere with the integrity of the walls of the appendix, either by thinning of the wall from distention of the canal, or by interference with the nutrition of the wall from disturbances of circulation, or by the presence of concretions in the lumen, or by atrophy of the mucous membrane. By these means the escape into the tissues of bacteria, which the appendix constantly harbors or may occasionally contain, is probably facilitated. The studies thus far made indicate that the bacterium most

frequently isolated is the *Bacillus coli communis*. This, as we have seen, is harmless in its natural habitation, but there is evidence to show that it becomes distinctly pathogenic when it escapes into the tissues or into situations where it does not naturally belong. At the same time the possible occurrence of the *Streptococcus pyogenes aureus* should not be ignored.

But, while the facts at our disposal at this stage of our knowledge would seem to point toward the *Bacillus coli communis* as a most important factor in the causation of acute appendicitis, several observations made on this germ, as well as upon the causation of perforating peritonitis not associated with lesions of the appendix, tend to warn one against forming too hasty or sweeping conclusions, for the following reasons: 1. The *Bacillus coli communis* is a germ which under ordinary conditions grows with extreme rapidity in cultures, and may thus conceal more slowly growing and less conspicuous forms. Barbacci (30), whose studies had not reached me until my own were completed, for example, has shown that in a considerable number of cases of perforative peritonitis in which cultures gave a growth of *Bacillus coli communis* alone, inoculations of the original exudate into mice revealed the presence in it of the pneumococcus.

My own studies, here recorded, did not embrace this unusual and more delicate technical procedure, because at the time they were made the reason for it was not obvious, so that, while there are no special grounds for believing that any other germs were overlooked with the technique which I have employed in common with most of those who have been engaged in such studies, the remote possibility is one which should be considered in this connection.



FIG. 10.—Appendix which has been converted into a slender, fibrous cord. There is no lumen, and it is completely invested by adhesions.

In the second place, it should not be forgotten that in perforation of the appendix, as in the perforations of the gut, other things than living germs may gain access to

the peritoneal cavity. These may be either inert solid material from faeces, or most complex and little-understood chemical substances, or the bodies of dead germs, which, as is well known, are present in large numbers in the faeces. The possible significance of these materials, other than living bacteria, which may escape from the appendix with the latter, in perforation or in abnormal permeability of the wall from whatever cause, will be evident to those who have followed the recent researches in many directions which show how greatly the effects of various germs in the tissues are enhanced by their association with various chemical substances whether introduced with the bacteria or preceding or following them. Extremely important in this connection are the studies of Barbacci on perforative peritonitis, already alluded to. He finds that the introduction of the *Bacillus coli communis* alone into the peritoneal cavity of animals does not induce a lesion which is fairly comparable with perforative peritonitis, and that therefore other factors must be involved. The necessity for seeking these other factors is more distinctly emphasized by Barbacci than by other experimenters on the action of the *Bacillus coli communis* in the peritoneal cavity. As a result of a series of ingenious and interesting experiments which the scope of this paper does not permit me to recount, Barbacci concludes that perforative peritonitis is the result of three factors:

1. The escape of faeces and intestinal gases into the peritoneal cavity.
2. The development of bacteria therein.
3. The constant irritation resulting from the continued escape of intestinal contents.

While these experiments of Barbacci's are important and suggestive, they need the control of repetition and very large extension before we shall understand the exact nature and full significance of these factors which re-enforce the action of the bacteria, but they are precise enough, even now, to emphasize the necessity of caution in attributing to the *Bacillus coli communis* a too exclusive rôle in the aetiology of the peritoneal inflammations accompanying acute appendicitis.

It is in a measure assumed in this paper that the inciting cause or causes are in part or largely identical with those which incite the acute inflammation in the wall of the appendix itself. The evidence that this assumption is correct and the gathering of data upon the commencement of the inflammatory processes in the wall of the appendix itself before the peritonæum becomes involved, as well as the exact relationship between malpositions and chronic lesions of the appendix and the acute processes, are matters for future investigations.

We have, therefore, two classes of factors in the causation of acute appendicitis: 1. Predisposing factors, which may vary in different cases. 2. More active factors, of which there seem to be two distinct but intimately associated elements: *a*, bacterial; *b*, the less well defined and less understood chemical factors associated with the unorganized faecal contents.

While several species of bacteria may, as it would appear, play an important and perhaps predominant rôle in

inciting the acute exudative inflammation in the wall of the appendix and in the peritonæum, there seems to me to be reason for the belief that the *Bacillus coli communis* is the most important.

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RECURRENCE AT A NEW SITE OF A LARYNGEAL GROWTH (PAPILLOMA)

IN A CASE ALREADY REPORTED UNDER THE TITLE,
"EVULSION OF A LARYNGEAL TUMOR
WHICH RETURNED TWENTY-TWO YEARS AFTER ITS
REMOVAL BY LARYNGOTOMY."

WITH AN ANALYSIS OF THIRTY-FOUR CASES.*

By R. P. LINCOLN, M.D.

I AM encouraged to invite your attention for a few minutes to the following report by my conviction that subsequent histories of operations are often essential to enable

* Read before the American Laryngological Association at its fifteenth annual congress.

the surgeon to determine the best mode of treatment. Unfortunately, it too often happens that an ultimate history is not available when sought for, because not recorded. Were such data accessible our prognosis would be more definite, and consequently the patient and physician more in accord.

I beg, therefore, to offer a brief digest of the report of a case presented by myself to this association four years ago, a full report of which may be found in the *Transactions* of the eleventh annual meeting of this association. Illustrations of the original tumor, reproduced from a lithograph, and of the first recurrence, made from photographs, are embodied in the report. Following this I will furnish an account of a third growth springing from a point hitherto free from disease, and then attempt an analysis of thirty-four recorded cases.

Our subject is a lady who, in 1862, when twenty-three years of age, first experienced difficulty in her larynx. Two years later the late Dr. Elsberg demonstrated a tumor of large size extending below the vocal cords. "It was attached in front along a line across the whole epiglottis and the posterior parts of the vocal cords." The growth, in bulk amounting to a "small egg," was removed by forceps and the base cauterized with acid nitrate of mercury. The result of treatment was not permanent. The tumor reproduced itself and necessitated further operation. In 1867 Dr. Elsberg performed laryngotomy and completely eradicated the growth.

The patient remained free from any symptom of trouble for twenty-two years. In January, 1889, I first saw her, when I found "a tumor of about the size of a large kernel of corn growing from the posterior third of the right vocal cord. The tumor was of a light pink color and resembled an ordinary papilloma." Our fellow, Dr. French, made a photograph of the larynx and its contents. On May 24, 1889, the whole of the tumor was removed by Czuczo's forceps. A few days later the seat of the growth was thoroughly cauterized with the galvano-cautery. The pathologist, Dr. Ferguson, examined a specimen of the tumor and pronounced it a simple papilloma, and not likely to return. After the recovery from the effects of the operation in 1889 the patient enjoyed a good speaking voice and freedom from hoarseness, in fact no inconvenience from the vocal organ, until the past winter, when a steadily increasing hoarseness led her to again consult me. An examination revealed a new development of growth, not where I expected to find it, but springing from the left vocal cord anteriorly, near the commissure. It was a little more than half as large as that removed four years ago. Though smaller than its predecessor, it caused greater inconvenience, probably from its positions the patient often experiencing suffocative attacks, due apparently to spasm of the glottis. Coughing, too, was very harassing. Intolerance expresses the condition. On April 20th the tumor was removed with the same facility and by the same method as already described in the previous treatment. The relief of all symptoms was more immediate. The microscopic character of the growth was identical with that of the former.

In connection with this case I have thought it would be interesting to tabulate all the cases of laryngeal papilloma recurring after operation that I could find in medical literature, and after a very hurried search I have succeeded in collecting thirty-four, including the one just narrated.

Among the questions naturally arising from a study of these cases are the following: Does this table harmonize

with the present views of pathologists in regard to the recurrence of benign tumors? Does the result of the operations indicate that the methods employed are defective in completely eradicating the neoplasm, or is the inference that there is in some individuals an inherent tendency to the development of morbid growths, such as papillomata?

In Heath's excellent *Dictionary of Practical Surgery*,* which is designed to present a compendium of the latest accepted opinions on the subjects of which it treats, Mr. Alfred Willett makes the following comprehensive statement in regard to the subject of recurrence: "Non-malignant tumors are seldom reproduced, and one is tempted to say never, if the whole of the visible growth has been removed." That this is altogether too sweeping an assertion as regards laryngeal papillomata, many of the cases in the table would seem to clearly indicate. In a considerable proportion of instances there can be no question that some portion of the neoplasm remained after operation. This is expressly stated to be the fact in Cases 2 (Fauvel), 4 (Fauvel), 11 (Fauvel), 12 (Mackenzie), 18 (Fauvel), and 23 (Lennox Browne). In others, notably mine (2) and one of Mackenzie's (14), the fresh growths were entirely on new sites, and can not therefore be strictly called recurrences. Excluding these two classes of cases, there remain a certain number of cases in which, although complete eradication was effected, a recurrence proper of the tumor took place on the original site. In some instances—as in Cases 24 (Lennox Browne), 26 (J. H. White), and 27 (Eliasberg)—the fresh growths occurred both in the former situations and in new ones.

"It is an altogether different thing," says Felix Semon,† "whether from the same place from which a papilloma has just been removed a fresh one springs up, or whether after the removal of a papilloma from the anterior commissure of the vocal cords another one begins to grow from one of the laryngeal ventricles. The latter event is evidently no 'recurrence' in the proper sense of the word, though often wrongly thus denominated, but evidence of a tendency to general papillomatous degeneration."

As to the likelihood of recurrence of papilloma after extirpation, remarks Sajous,‡ the following rules, according to Paul Bruns and Oertel (quoted from Morell Mackenzie), who divided papilloma into three classes, may furnish an approximate idea.

First Class.—Light-red or dark tumors, varying in size from a millet seed to a bean, with uneven surface and broad base, sometimes solitary, but generally thinly scattered and never numerous, either do not recur at all or only after some months.

Second Class.—Whitish-gray, exquisitely papillary, warty, or conical tumors, nearly always originating with a broad base from the vocal bands in adult patients, also recur very slowly, often not till after several years.

Third Class.—Large reddish tumors resembling a mulberry or cauliflower. They may be solitary, but are most

* Vol. ii, p. 681.

† Heath's *Dictionary of Practical Surgery*, vol. i, p. 894.

‡ *Diseases of the Nose and Throat*, Philadelphia, 1886, p. 380.

frequently multiple, and are commonly seen in children. These generally recur after one or two months.

A strong confirmation of the correctness of these views in regard to the third class of papilloma mentioned is afforded by Cases 21 (Hooper), 26 (J. H. White), and 27 (Eliasberg).

As a rule, of course, in benign tumors, the more complete the extirpation, the greater will be the chance of immunity from recurrence. But whatever procedure may be adopted, and however perfectly the growth may be removed, there will be cases met with from time to time in which recurrence inevitably takes place. Why this should be so can probably be explained only on the hypothesis that in certain individuals there is an inherent tendency to the development of neoplasms on the mucous membranes. In regard to the ætiology of papilloma of the larynx Garel* gives his hearty assent to the opinion of Thost, that papilloma is not properly a tumor, but merely a proliferation of the mucous membrane, and that this proliferation will be produced, for example, under the direct irritation of the membrane due to purulent, viscid, or dry secretions such as one meets with in the various catarrhal affections.

The principal ætiological factor in the development of papilloma and other non-malignant growths in the larynx is assigned by various authorities (Fauvel,† Mackenzie,‡ Cohen,§ Lennox Browne,|| Semon,^ Sajous^) to be chronic hyperæmia of the mucous membrane. Says Lennox Browne,‡ for instance: "Without doubt the most common cause is hyperæmia, and naturally all which tends to excite congestion will predispose to the production of new formations. Catarrh, the use of the voice during catarrhal attacks, certain occupations accompanied by the inspiration of noxious vapors, may all be considered predisponents of laryngeal growths." Bosworth, so far as I am aware, is the only writer who maintains that a large majority of the cases develop in a perfectly healthy larynx, stating that, at all events, in most of those which have come under his own observation it was difficult to discover any existing inflammatory condition. Traumatism, however, in the form of laryngeal strain or overexertion of the voice, he acknowledges, is undoubtedly to be regarded as a not infrequent cause of the disease. That such laryngeal strain is ordinarily accompanied by more or less congestion of the mucous membrane would seem to be the experience of most observers.

But, granting that chronic hyperæmia, laryngeal strain, and various other sources of irritation are instrumental in the production of these neoplasms, this class of causes is evidently not sufficient to account entirely for their development, since there are vast numbers of individuals who suffer

from these and yet do not become affected with laryngeal tumors. We are forced, therefore, to the conclusion that in certain persons there is an inherent tendency to the production of such growths. Now if, after the removal of the neoplasm by operation, this tendency still exists, it would seem to be reasonable to suppose that, should favorable circumstances be present for its reproduction, the growth is liable to recur. In discussing the subject of recurrence after removal, Lennox Browne* expresses the opinion that such reproduction is much more frequent than is generally supposed, and that while this is sometimes due to the incompleteness of the operation, in others it results from a mucous membrane having a neoplastic proclivity.

Furthermore, in regard to laryngeal papilloma, there is some ground for the view held by Fauvel,† that certain persons appear to be the subjects of a special papillomatous diathesis. He states that it is not rare to find on the persons of those suffering from papilloma of the larynx similar warty growths on the skin or on other mucous membranes besides the laryngeal. In two of the cases cited in his work (Nos. 248 and 253), where a brother and sister were affected with papilloma of the vocal cords, he found that both the patients had warts upon the face and hands. In one or two of the cases in my table it is stated by those reporting them that the patient had warts on the hand, and, as we have seen, Semon‡ speaks of a "tendency to general papillomatous degeneration."

In regard to the matter of operation, experience would seem to show that the various approved methods of intralaryngeal procedure, if employed with skill, will ordinarily accomplish all that can be expected in this class of cases in the way of protecting the patient against a recurrence of the disease. It was formerly maintained that thyrotomy offered a more efficient means of eradicating the growth and securing future protection; but the statistics of Bruns,* of Tübingen, are considered by most of the best authorities to have proved these views to be unfounded. Thyrotomy should then be resorted to only under special circumstances, since, as has been said, it has been shown beyond question that in a certain proportion of cases recurrence will take place however perfectly the growth may have been extirpated.

Semon|| has found that if, in cases of multiple recurring papillomata, the intralaryngeal removal be perseveringly proceeded with, almost always, finally, a time arrives when the tendency to a fresh formation of these growths appears to become exhausted. His experience has been confirmed by others. In Case 8 (Fauvel), in the table, although a small portion of the growth still remained after evulsion and cauterization, the second recurrence did not take place until five years had elapsed, which, Fauvel believes, goes to show that, even in cases where the destruction is not complete, recurrence, if it ensues at all, may be

* *Annales des maladies de l'oreille*, etc., June, 1891.

† *Maladies du larynx*, Paris, 1876, p. 199.

‡ *Growths in the Larynx*, London, 1871, p. 8.

§ Ashhurst's *International Cyclopædia of Surgery*, New York, vol.

v, p. 724.

|| *The Throat and Nose and their Diseases*, 3d edition, Philadelphia, 1890, p. 446.

^ *Op. cit.*, p. 892.

^ *Op. cit.*, p. 379.

‡ *Loc. cit.*

* *Op. cit.*, p. 454.

† *Op. cit.*, p. 200.

‡ *Loc. cit.*

* Bruns, *Die Laryngotomie zur Entfernung intralaryngealen Neubildungen*, S. 148, Breslau, 1878.

|| *Op. cit.*, p. 894.

long delayed. In Case 21 (Hooper) repeated operations were performed for nearly a year (the growth in the meanwhile constantly recurring and at times spreading rapidly), when finally the process became arrested; and this notwithstanding the fact that portions of the neoplasm still remained in the larynx. In Case 23 (Lennox Browne) a small fragment of the growth was left, but the recurrence did not take place for two years and a half. In one instance of obstinate recurrence Lennox Browne states* that a good result was obtained from enjoining absolute silence for two months and the application during that period of continuous cold on the larynx by means of a Leiter coil.

It is interesting to note that in two of the cases in the table—26 (J. H. White) and 27 (Eliasberg)—spontaneous cure occurred after the performance of tracheotomy. Dr. White in his report† refers to four other similar cases—two by Oertel, quoted by Hoffmann (*Volkmann's Sammlung klin. Vorträge*, No. 315), one by G. Hunter Mackenzie (*Lancet*, April 6, 1889), and one by Garel (*Annales des maladies de l'oreille*, etc., June, 1891). He also calls

* *Op. cit.*, p. 44.

† *Journal of the American Medical Association*, October 22, 1892, p. 478.

attention to the opinion expressed by Thost (Ueber Papillen in der oberen Luftwegen, *Deut. med. Woch.*, May, 1890) that papilloma of the larynx in children will always disappear spontaneously if let alone; that it is a benign neoplasm and without danger. "If this is correct," he asks, "why should thyrotomy, with its attendant risks to life and voice, be performed? Is it not better to let such cases alone, merely keeping them under observation to guard against suffocation from any sudden or unusual excessive development?" It is only in these exceptional cases, he continues, that tracheotomy is called for, and it will be all the surgical interference required.

Finally, in our consideration of this table, it may be well to note the suggestive case (No. 31) in connection with which Lennox Browne directs the attention of the profession—for the first time, I believe—to the possibility of hypertrophy of the pharyngeal tonsil being an aetiological factor of laryngeal papillomata in children. Whether this be really the case or not, the fact remains that the patient, in whom rapid recurrence had taken place, recovered after the removal of adenoid vegetations which were found behind the soft palate. In any similar case it would certainly be advisable, as a possible precaution against recurrence, to adopt the same course.

No. of case.	Date.	Sex.	Age.	Occupation.	Situation and extent.	Treatment.	Operator.	Reference.	Time of recurrence.	Subsequent treatment; final result; remarks.
1	June, 1862.	F.	23	.....	Attached in front along a line across the whole epiglottis, and passing below the vocal cords; of the size of a small hen's egg, and everywhere adherent to the parts beneath except in most dependent portions.	Removal with scissors, cutting forceps, and polypus forceps. Remnant cauterized with acid nitrate of mercury. Later, laryngotomy, without tracheotomy; complete removal of every vestige of the growth.	Louis Eleberg.	<i>Transactions of American Laryngological Association</i> , 1889, p. 141.	22 years.	Evislon with Czuczo's forceps, followed by application of galvanocautery, by Dr. R. P. Lincoln.
2	Sept., 1862.	M.	45	Manufacter.	Both vocal cords, covering nearly their entire length.	Evislon with Fauvel's forceps, and cauterization with chromic acid and nitrate of silver.	Ch. Fauvel.	<i>Maladies du larynx</i> , 1876, p. 277.	Within 1 year.	Patient returned to his home in the country before the growth was entirely removed. At different times new portions were taken away, and then the case was lost sight of. In 1867 the neoplasm was operated on by Bruns, of Tübingen, with the écoueur, and cauterizations with chromic acid; complete recovery.
3	April, 1863.	M.	44	Carpenter.	Almost the entire lining membrane of the larynx.	Evislon with tube forceps and application of escharotics.	Morell Mackenzie.	<i>The Use of the Laryngoscope</i> , 2d ed., p. 121; <i>Growth in the Larynx</i> , p. 315.	On both ventricular bands, March, 1870 (7 years).	Second series of operations with tube forceps; cure.
4	Jan., 1865.	M.	28	Clerk.	Free border of right vocal cord; of the size of a large pea.	Evislon with Fauvel's forceps.	Ch. Fauvel.	<i>Maladies du larynx</i> , p. 346.	1 year.	Patient left before complete destruction of the growth was effected. Evislon again practiced, with complete restoration of voice. Seven years and a half later patient returned with partial reproduction of the tumor.
5	Dec., 1865.	M.	39	Inn-keeper.	Anterior commissure and both vocal cords.	Evislon with crushing forceps.	Türk.	<i>Klinik der Kehlkopfkrankheiten</i> , p. 578.	Within 1 year.	Excision and cauterization; cure.
6	Feb., 1866.	M.	30	Employee in theater.	Right vocal cord; of the size of a pea.	Evislon with wire loop and application of chromic acid.	Ch. Fauvel.	<i>Maladies du larynx</i> , p. 366.	8 years.	Tumor again removed, and did not afterward return.
7	1867.	M.	45	Workman.	Multiple growths on free borders of both vocal cords and inferior surface of epiglottis, and in the angle of the thyroid cartilage.	Evislon with Fauvel's forceps.	Ch. Fauvel.	<i>Ibid.</i> , p. 418.	Within 6 months.	Neoplasms much larger and more numerous than before. Evislon and cauterization with chromic acid. Rapid reproduction, rendering respiration difficult. Tracheotomy and evislon. Again rapid recurrence. Thyrotomy, evislon, and cauterization with chromic acid. The growths still continued to recur. Death from intercurrent pneumonia. The later portions removed were composed of young embryonic tissue strongly resembling sarcoma.
8	Feb. 14, 1867.	M.	38	Grocer.	Both vocal cords and posterior surface of epiglottis.	Evislon with Fauvel's forceps and cauterization with perchloride of iron.	Ch. Fauvel.	<i>Ibid.</i> , p. 435.	3 years.	Cauterization with nitrate of silver and acid nitrate of mercury. Evislon with forceps. A small portion of the growth still remained. Five years after this there was another marked recurrence, and evislon was again practiced. Patient still under treatment.

No. of case.	Date.	Sex.	Age.	Occupation.	Situation and extent.	Treatment.	Operator.	Reference.	Time of recurrence.	Subsequent treatment; final result; remarks.
9	July 8, 1867.	F.	31	.....	Whole lining membrane of larynx.	Evulsion with tube forceps.	Morell Mackenzie.	<i>Growth in the Larynx</i> , p. 215. Berlin kin. Wochenblatt, 1869, No. 4.	June, 1870 (3 years). Within a short time, cure.	Second series of operations with tube forceps, and recovery of voice.
10	Sept., 1867.	M.	16	.....	Both vocal cords.	Evulsion with wire loop and application of chromic acid.	Toboid.		Within a short time, cure.	Two or three recurrences; ultimate cure.
11	Feb. 4, 1868.	M.	42	Engineer.	Free borders of both vocal cords; of the size of a small bean.	Evulsion with Fauvel's forceps; pedicle still remained.	Ch. Fauvel.	<i>Maladies du larynx</i> , p. 427.	Within 2 months.	Evulsion and cauterization with perchloride of iron; permanent cure.
12	Feb. 8, 1868.	F.	31	.....	Right vocal cord.	Evulsion with tube and common laryngeal forceps.	Morell Mackenzie.	<i>Growth in the Larynx</i> , p. 217; <i>Med. Times and Gazette</i> , June 18, 1868.	Within a short time.	Fresh growth in consequence of not all having been removed on the first occasion; complete recovery ultimately.
13	May 4, 1868.	F.	66	.....	Left ventricular band.	Evulsion of a portion with common laryngeal forceps; subsequently tracheotomy and thyrectomy.	Morell Mackenzie.	<i>Growth in the Larynx</i> , p. 219.	2½ years.	Cure.
14	July 3, 1868.	M.	8	Wine merchant's son.	Right vocal cord.	Evulsion with tube forceps and destruction with caustic solutions.	Morell Mackenzie.	<i>Ibid.</i> , p. 219.	Fresh growth 2 years later on posterior wall and on left ventricular band.	Repetition of treatment and recovery of good voice.
15	Sept. 3, 1868.	M.	61	Upholsterer.	Free borders of both vocal cords and in the angle of the thyroid cartilage.	Evulsion with Fauvel's forceps.	Ch. Fauvel.	<i>Maladies du larynx</i> , p. 465.	Within 1 year.	Evulsion with forceps, repeated at intervals during two months; patient then lost sight of.
16	Nov., 1868.	M.	15	Page.	Left vocal cord.	Evulsion with tube forceps.	Morell Mackenzie.	<i>Growth in the Larynx</i> , p. 219.	10 months.	Second series of operations; cure.
17	June 3, 1870.	F.	26	.....	Large growth upon left side of larynx, and small growth on right vocal cord.	Evulsion with Cuzco's forceps; remains of growth cauterized with carbolic acid.	J. Solis-Cohen.	<i>Diseases of the Throat and Nasal Passages</i> , 3d ed., p. 558.	7 years.	Evulsion and cauterization with nitrate of silver; cure.
18	Aug. 12, 1872.	M.	41	Cashier.	On both vocal cords.	Evulsion with long forceps; growth on left cord not completely removed.	Ch. Fauvel.	<i>Maladies du larynx</i> , p. 549.	Within 4 months.	Evulsion. Nitrate-of-silver solution applied to pedicle; cure.
19	1876.	M.	28	Teamster.	.....	.....	George M. Lefferts.	<i>Med. Record</i> , 1876; <i>Journal of Laryngology</i> , July, 1892, p. 285.	10 years.	For several years after the recurrence the patient had more or less difficulty, and underwent various treatments. In January, 1892, he came under the care of Dr. J. Solis-Cohen. The growth had then penetrated the larynx exteriorly, in a mass larger than an almond. On account of urgent dyspnea, tracheotomy was performed. Finding it impossible to remove the tumor by intralaryngeal procedures, Dr. Solis-Cohen excised the external growth, and then split the larynx and removed every portion of the internal growth. Recurrence took place at the end of four weeks, and the tumor grew very rapidly, protruding again through the thyroid cartilages. On April 1st excision of the larynx was performed, and the patient made an uninterrupted recovery. The growth was pronounced to be a cylindrical epithelioma. Dr. Solis-Cohen expresses the opinion that there was no conversion of a papilloma into a malignant growth, the latter simply becoming developed on the site of the benign growth.
20	Oct. 25, 1880.	F.	28	.....	Anterior angle of vocal cords.	Evulsion with Mackenzie's forceps.	F. H. Hooper.	<i>Archives of Laryngology</i> , vol. iii, p. 855.	Within 1 year.	Growth removed a second time in same way, October 10, 1881.
21	Dec. 2, 1880.	M.	28	.....	Nearly the whole of the right vocal cord, and extending into the right ventricle; small excrescences also on left vocal cord, almost the middle.	Evulsion with Schröter's tube forceps.	F. H. Hooper.	<i>Ibid.</i> , p. 336.	Began to recur at once, spreading and involving the ventricular bands and ary-epiglottic folds.	Repeated operations up to November 1, 1881, when the growth appeared to be arrested. Portions of it still remain, but they give rise to no symptoms.
22	1882.	M.	60	Farmer.	On left ventricular band, covering entire left side of larynx and partially the lower part of right side.	Evulsion.	B. Tauber.	<i>Ibid.</i> , p. 362.	Within 1 year.	Eighteen months after first operation a large growth was found entirely covering the larynx. Tracheotomy, seven eighths of the tumor removed. It subsequently recurred in a malignant form, and in six months terminated fatally. Diagnosis of cancer confirmed by the microscope.
23	Nov. 20, 1883.	M.	35	.....	One large neoplasm at anterior insertion of vocal cords, and another beneath the left cord at its posterior portion.	Snare and Voltolini's sponge.	Lennox Browne.	<i>The Throat and Nose and their Diseases</i> , 3d ed., p. 460.	2½ years.	A small fragment had been left of the former growth, as the patient had to go away. The tumor moved at one sitting under the snare, and the voice again restored.
24	July 11, 1885.	M.	11	.....	Large growth hanging down the glottis from its anterior portion, attached to both vocal cords; another small sessile neoplasm growing from edge of left cord, about its center.	Snare and Voltolini's sponge.	Lennox Browne.	<i>Ibid.</i> , p. 461.	Within 8 months.	The same treatment repeated. Recovery at the end of three months; another recurrence six months later. The treatment was renewed, and at the time of writing (five months after it was resumed) the larynx was clear with the exception of very slight thickening of the right vocal cord. Mr. Browne states that the frequent recurrence and the difficulty of intralaryngeal treatment were so discouraging that he was several times tempted to perform thyrectomy.
25	1881.	F.	..	.....	Bottom of laryngeal vestibule; of the size of a walnut.	Evulsion; cautery; Voltolini method.	Ariza.	<i>Revista de Med. y Cirug. Práctica</i> , Aug. 7, 1877.	Within a short time.	Neoplasm reproduced in the form of granulations, which grew on all sides. Applications of chloroform-zinc solutions. Cure after four months of treatment.

No. of case.	Date.	Sex.	Age.	Occupation.	Situation and extent.	Treatment.	Operator.	Reference.	Time of recurrence.	Subsequent treatment; final result; remarks.
26	June 11, 1886.	M.	5	.....	Left vocal cord and ventricular band at inter-arytenoid space.	Evisulation with forceps and cauterization with chromic acid.	Joseph H. White.	<i>Journal of Amer. Med. Association</i> , Oct. 22, 1892, p. 478.	4 months.	When the growth recurred it extended to the right side and to the epiglottis. Removal in same way. A second recurrence within one month. Again removed. Within two months the larynx refilled with a cauliflower excrescence. Removal <i>per vias naturales</i> was followed by relief, but as the growth was not entirely destroyed, an attack of suffocation twelve days afterward (which nearly proved fatal) necessitated tracheotomy. Any subsequent attempt to remove the growth resulted in increasing the neoplasm. When all operative interference ceased it began to disappear spontaneously, and the case is now perfectly well. The tube has been worn for five years.
27	Dec., 1887.	M.	10	.....	About two thirds of free edge and lower surface of left vocal cord and the anterior commissure occupied by a large number of small neoplasms, in a cauliflower fashion.	Thyreotomy; the growths removed partly with scissors, partly with a sharp spoon, after which Paquin's cautery was applied to the raw surfaces.	S. S. Eliasberg.	<i>Mémoires de l'Académie de Médecine</i> , 1891, No. 1, p. 46; <i>Journal of Laryngology</i> , June, 1891, p. 245.	Within 2 months.	Thyreotomy again performed by Professor Kosinski, of Warsaw. The neoplasms and the left vocal cord removed. In two months an alarming attack of suffocation, necessitating tracheotomy. In about a month the whole organ became literally blocked up with the tumors; but two months later they began to dwindle away, and in three months more the larynx was perfectly clear. No further relapse.
28	June 17, 1888.	M.	24	.....	Base of epiglottis.	Intubation; cauterization with chromic acid, applied to anterior portion of tube and left in position for a few days; another application then made in the same way.	F. C. Waxham.	<i>Journal of Amer. Med. Association</i> , Oct. 22, 1892, p. 477.	4½ months.	During the absence of Dr. Waxham in Europe, tracheotomy was performed, and when he returned the larynx was firmly sealed by adhesions. Laryngotomy was performed, the adhesions broken up, and the remnants of the papilloma removed. The tracheotomy tube was allowed to remain, and an intubation tube was also used. There was a constant tendency to the return of the growth above the latter, which was as frequently removed by means of the curette. At the end of two years the tracheotomy tube was dispensed with. For two years the patient had worn an intubation tube alone, and he now presented every appearance of health.
29	July 18, 1889.	F.	12	.....	Upper surface of right vocal cord, near the anterior commissure. It extended upward into the vestibule, was oblong in shape, and had an attachment about three eighths by one fourth inch.	Mackenzie's cutting forceps; insufflation of salicylic acid diluted with powdered acacia; tracheotomy, followed by thyreotomy. The growths removed piecemeal by scissors and forceps, and the site curetted with a sharp curette.	F. C. Rayner.	<i>Ibid.</i> , April 30, 1892.	3 months.	Intubation was resorted to on account of dyspnea. Phthisis was detected in the lungs, and seven months after the thyreotomy the child died in suffocative attack before assistance could be obtained. (The intubation tube had been withdrawn.) An autopsy was not permitted, but the author believes that a deposit of tubercle was probably the cause of the laryngeal obstruction at this time, rather than a true recurrence of the papilloma.
30	1890.	M.	12	.....	Larynx filled with papillomata.	Evisulation; later, thyreotomy and destruction of the neoplasms by the sharp spoon and Paquin's cautery.	B. Fraenkel.	<i>Deutsche med. Woch.</i> , 1891, No. 15.	Within 1 year.	Patient still under treatment.
31	Sept. 13, 1890.	F.	6½	.....	Upper surface of left vocal cord and anterior and inner surface of right arytenoid cartilage; of the size of a flattened split pea.	Evisulation with forceps; curette; cauterization with chromic acid.	McDonagh.	<i>Journal of Laryngology</i> , January, 1891, p. 21.	Immediately.	Patient was afterward sent to Mr. Lennox Browne, who removed the neoplasms by evulsion. As the voice soon grew husky again, he removed the tonsils, and also a large number of adenoid vegetations which were found behind the soft palate.
32	Nov., 1890.	F.	10½	.....	Both vocal cords, the anterior surface of the arytenoids, the ventricular bands, and the inter-arytenoid commissure.	Evisulation with Mackenzie's forceps.	J. M. Rees.	<i>Ibid.</i> , July, 1891, p. 291.	Within a short time.	Operation repeated several times, and all kinds of local medication (iactic acid, iron, zinc, etc.), without result. Patient still under treatment.
33	1891.	..	5	.....	Anterior part of larynx.	Tracheotomy; repeated extirpation of the growths.	Peralt.	<i>Annales des maladies de l'oreille, etc.</i> , March, 1892, p. 215.	Within a short time.	Frequent recurrences during eighteen months, but continued amelioration.
34	1891.	..	6	.....	Anterior part of larynx.	Curette.	Peralt.	<i>Ibid.</i>	Within a short time.	Frequent recurrences; but treatment finally resulted in a cure.

Bismuth as a Local Application in Burns.—"The treatment of extensive burns by bismuth, which is employed by Dr. Bardleben in the Friedrichshain Hospital, Berlin, is stated by Dr. Spigearni, of Moscow, to have succeeded admirably in the case of a man who was accidentally burned in a Russian bath by means of a jet of superheated steam. The burn covered the face and the whole surface of the body, with the exception of the feet, the legs, and the lower third of the thighs. When Dr. Spigearni saw him he had been for six days under the care of another surgeon, who had applied iodoform. This was com-

pletely caked by the purulent and serous discharges from the blisters, and the temperature was nearly 102° F. After cleansing the surface thoroughly by means of absorbent cotton wool and boracic lotion it was well powdered over with subnitrate of bismuth enveloped in an absorbent cotton-wool dressing, the latter being omitted from the face, and quinine and stimulants were ordered. A marked improvement soon began to show itself; the dressing was changed three times in the course of the three weeks during which the man remained under treatment, when he was completely cured."—*Lancet*.

RECENT STUDIES IN NAUPATHIA, OR SEASICKNESS.

SYMPTOMATOLOGY, DIAGNOSIS, PATHOGENESIS,
AND TREATMENT BY A NEW AND EFFICACIOUS METHOD.

By WINSLOW WARNER SKINNER, M. D. (PAR.),
FORMERLY SHIP'S SURGEON ON SEVERAL TRANSATLANTIC LINES, ETC.

(Concluded from page 752.)

CLINICAL REPORTS.

A. Treatment of Seasickness by Atropine and Strychnine.

CASE I.—Madame C., Argentine, aged twenty-nine years. She was the first person upon whom this method was employed. She embarked at Montevideo on April 28, 1886, for Havre.

April 29th.—The patient has been sick abed since the departure of yesterday. She has continual nausea and frequent mucous vomiting. Tongue moist, pale-rose, and free from any coating. Intense frontal cephalalgia; great prostration. Pulse, 80, feeble.

At 7.40 in the morning injection (hypodermic) of one cubic centimetre of the solution of atropine and strychnine. At 7.50, pulse, 75. At 8.10, pulse, 120, still feeble. Vomiting has ceased. At 9.25, pulse, 114. Second injection of one cubic centimetre. At 11.15, pulse 114. Considerable amelioration. There is no more headache or nausea; she is inclined to get up. The patient feels well; she has slept since the first injection.

2 P. M.—She is no longer sick at all and remains on deck.

4 P. M.—She is still doing well, although lying down since a moment ago. She suffers from nothing whatever. Pulse, 78, stronger than this morning.

April 30th.—She passed a good night. A little nausea this morning. At 9.30, pulse, 90, of medium force. Injection of one cubic centimetre of the solution.

May 1st.—She is doing perfectly well. Has not even had nausea or headache since yesterday morning.

CASE II.—Madame G., aged twenty-eight years. Same voyage. A very stout lady.

April 29th.—Has been sick since the beginning of the voyage—i. e., since last evening at 10. Tongue clean, complete anorexia, mucous vomiting, constipation since three days ago, frontal headache, great prostration; is in recumbent position.

At 9 A. M., pulse, 75, feeble. Hypodermic injection of one cubic centimetre of the solution of the sulphates.

11.30.—Pulse, 105, stronger. Has much less cephalalgia. Has slept since the injection. *She wishes her two little girls to have the treatment, as they have both been sick all night.*

10 P. M.—She feels no more nausea, though there is some heaviness of the head.

April 30th.—Passed an excellent night, but on arising this morning she felt nausea and weakness. At 7.30, pulse, 75, feeble. Injection of one cubic centimetre. At 10.30, feels no more nausea at all; headache better; has slept since the injection. *She has eaten with appetite and has retained the food.* After eating she took her work (embroidering), being no longer sick, though the boat still rolls a great deal.

10.30 P. M.—Had a light dinner at 7. Felt a little sick, but no vomiting. The seat of the injections hurt her a little.

Madame G., who has made several long voyages on the ocean, declares that during none of them has she been so little sick as on this one.

CASE III.—Madame G's. children, little girls, one aged five years, the other two years and a half, have also been sick all night and this morning. They had vomiting, pallor, coldness of the extremities, and prostration.

They were treated, in accordance with the repeated request of their mother, in the same manner that she was. The youngest received by injection only one sixth of a cubic centimetre of the solution—that is, 0.00008 of atropine and 0.00016 of strychnine. The elder received somewhat more. The injections were given at ten o'clock in the morning.

At 11.30 A. M. they had not vomited again and were asleep. Two hours after the injection they presented a generalized redness of the skin very pronounced, also slight mydriasis.

2 P. M.—At this hour the children have been for some time on the deck, playing in a lively manner and perfectly cured of their seasickness.

CASE IV.—Madame V., aged twenty-three years, on the same voyage.

April 29th.—She began to be sick about 1 P. M. At three, pulse, 66, feeble; tongue rosy and moist; continual nausea; constipation; prostration, heaviness of the head, face very pale, extremities cold, pupils atresic. Hypodermic injection of one cubic centimetre of the solution.

6 P. M.—Pulse, 84, of medium tension. She has dined and finds herself *quite cured*. The face is rosy; no sensation of heaviness of the head. Pupils normal.

CASE V.—Mrs. W., aged thirty years, same voyage.

April 29th.—Sick ever since early morning. The tongue is normal. Abundant and frequent mucous vomiting. Constipation, frontal cephalalgia, moderate prostration, recumbent position. Pulse, 65, feeble.

8.35 A. M.—Hypodermic injection of one cubic centimetre of the solution. *At nine o'clock she gets up* and feels no more nausea; she feels well; the face is no longer pale as before; there is no more headache or prostration.

6 P. M.—The amelioration continues. She has dined well and shows no symptoms of seasickness.

10 P. M.—Some nausea on retiring for the night. Pulse, 72. No other symptoms. Injection of one cubic centimetre.

30th.—She passed a very good night and feels in excellent health on arising this morning.

11.35 A. M.—Vomiting since breakfast at ten. Some frontal headache. Pulse, 72. Injection of three fourths of a cubic centimetre of the solution of the two alkaloids.

1.30 P. M.—Pulse, 100, rather strong. The patient says that since half an hour ago she does not see well; there seems to be a veil before the eyes. No iridescence upon objects seen, no mydriasis, no other inconvenience from the injection (amblyopia).

7 P. M.—She has vomited a little once or twice since dinner at five o'clock. Dryness of the mouth.

The patient, who has made other voyages, affirms that she has never been so well during their first days as she is during this.

May 1st, 7.45 A. M.—Examination shows that the heart is normal. The corneal, patellar, and plantar reflexes are normal. The patient is still lying in bed. Pulse, 81, tension and rhythm normal. Has slight frontal headache. Face slightly congested, pupils normal, extremities warm; constipation since three days. By precaution (because she has no nausea or vomiting for the moment), a pill is given her which contains quinine sulphate, strychnine sulphate, belladonna extract, and alcoholic extract of rhubarb. This pill was administered three quarters of an hour before she arose. She vomited but once, and that was two hours after arising.

11 A. M.—Less headache, no more visual trouble. She reports herself much better. Pulse, 75, of medium strength.

She was not seasick any more during the voyage, which lasted twenty-four days.

CASE VI.—Master W., aged eight years, son.

April 29th.—Began to be sick after breakfast at ten.

3 P. M.—Nausea; tongue slightly coated; abundant and troublesome salivation; no headache; notable prostration; position half reclining and motionless; very marked pallor of face, coldness of extremities, pupillary atresia; pulse, 72, feeble. Injection of half a cubic centimetre of the solution.

7 P. M.—Pulse, 78, stronger, but somewhat irregular. He has not been sick at all since receiving that single small injection. He is gay and smiling on going to bed. The pallor of the face is replaced by a rosy tint. There is no longer any abnormal salivation.

May 6th.—Was not seasick any more during the voyage.

CASE VII.—Master Augustus W., aged six years, son.

April 29th, 5 P. M.—Has vomited several times; is dull and listless; pallor of face, coldness of extremities, pupils normal; pulse, 84. Injection of one fourth of a cubic centimetre.

7 P. M.—Pulse, 108, of medium strength. Remarkable amelioration in general condition. Sleeps quietly without having had any more vomiting. Cheeks rosy, hands warm.

30th.—Is no longer sick at all. Plays gayly, as does also his brother.

May 6th.—Remains thoroughly well.

CASE VIII.—Mr. B., aged thirty-eight years, same voyage.

April 29th.—Has been sick all day and stayed abed. *He has not ceased to vomit almost continuously.*

6 P. M.—The mucous vomiting continues very profusely; complete anorexia; constipation; tongue slightly foul; no frontal headache; very great degree of prostration. Pulse, 57, of medium tension. Injection of one cubic centimetre.

9 P. M.—He feels *no more nausea at all*. He has slept soundly since the injection. The face is no longer pale.

30th.—Passed an excellent night. Slept soundly without any nausea.

6.30 P. M.—He received no injection during the whole day and was *seasick all the time*. This evening he has vomiting, pallor of the face, very decided coldness of the hands, cephalalgia, prostration, and weakness. The patellar and corneal reflexes are normal. Heart healthy. Has had a semisolid stool. Pulse, 45, feeble. Injection of one cubic centimetre.

May 1st, 8 A. M.—The night was passed very comfortably. This morning the extremities are warm, the face rosy, and there is less prostration. Pulse, 48.

CASE IX.—Mlle. S. V., aged nineteen years.

April 29th, 12 M.—Alimentary and mucous vomiting; tongue clean; occupies a sitting position; no headache. Pulse, 100, feeble. Injection of one cubic centimetre.

2 P. M.—Pulse, 114, stronger. No more vomiting, and not even any nausea.

6 P. M.—Pulse, 51, medium tension. Commenced to vomit again after dinner at five.

7 P. M.—Pulse, 57, feeble. Injection of one cubic centimetre.

May 5th.—The patient has shown *no more symptoms of seasickness* since the last injection.

CASE X.—Mlle. Catherine X., aged thirty-six years. (This case is interesting on account of the failure of the treatment owing to a cardiac lesion.)

April 29th.—Patient is sick since early morning. At 9.30 A. M., injection of one cubic centimetre.

12 M.—Has vomited several times since the injection. Pulse, 116, feeble. Second injection of one cubic centimetre.

3.45 P. M.—No improvement; vomiting has continued since second injection; tongue slightly coated; some nausea, dizziness, but no headache; pupils normal; pallor of face and coldness of extremities. Pulse, 72, feeble. Third injection of one cubic centimetre.

6 P. M.—No amelioration.

30th.—Still some nausea. Toward evening she feels better.

May 2d.—Examination of the heart reveals *well-characterized mitral regurgitation*.

B. Treatment of Naupathia by Caffeine.

CASE XI.—Madame L., aged twenty-one years, sailed from Bordeaux for New Orleans on August 14, 1886, on the steamship *Marseille*.

August 17th.—Patient has been seasick ever since the departure three days ago. She has not left her bed and has eaten nothing.

9.30 A. M.—Very great prostration; severe frontal cephalalgia; gastralgia. Pulse, 114, small, feeble; rectal temperature, 37.6° C. (99.7° F.).

Treatment.—Subcutaneous injection of three quarters of a cubic centimetre of the solution of caffeine described before—*i. e.*, three tenths of a gramme of caffeine and about a fifth of a gramme of sodium salicylate.

10 A. M.—Pulse, 78, fuller, stronger. She feels better.

11.40 A. M.—Pulse, 75, stronger. Feels herself still better. No more headache or gastralgia. She still remains abed, and is not hungry. Rectal temperature, 37.3°.

4.30 P. M.—Pulse, 90, fairly strong. *She feels perfectly comfortable*, though still abed. Later she went to dinner for the first time since embarking.

20th.—She has been well since last note.

CASE XII.—Mlle. M. P., aged eighteen years. Same voyage as last case.

August 17th.—She has also been seasick ever since leaving Bordeaux three days ago. She keeps her bed and has eaten very little. No evacuation of the bowels since embarking.

10.10 A. M.—Pulse, 84, feeble; rectal temperature, 37.6° C. Cephalalgia; gastralgia. Injection of three quarters of a centimetre (three tenths of a gramme) of the solution of caffeine.

12 M.—Pulse, 72, still feeble and intermittent, as it was also at first visit at 10.10 A. M. Rectal temperature, 37.7°. No improvement.

4.30 P. M.—Pulse, 96, much stronger. *Notable amelioration.* She talks and laughs with the other passengers, and remains sitting up in bed.

20th.—She remains cured.

CASE XIII.—This case shows the remarkable effect of this method of treatment. Paula X., aged eight years, a tawny-colored native of the Cape Verde Islands, was one of our passengers from those islands to Buenos Ayres. She began to be sick in the dory while being rowed to the steamship, and when on board she was violently sick every day, so that she could keep absolutely no aliments on her stomach, neither solids nor fluids. She was compelled to lie down almost the whole time vomiting at frequent intervals. This state of affairs continued during six days in succession without her receiving any treatment, and by that time she had become so feeble and emaciated that the captain, to whom she was given in charge, became alarmed about her and asked us to apply our method of treatment. At ten o'clock on the sixth day we gave her a hypodermic injection of one third of a cubic centimetre of the solution of atropine and strychnine—*i. e.*, about 0.0003 of a gramme (or about one two hundredth of a grain) of each of these alkaloids. *Three quarters of an hour afterward she sat up at a table and ate and drank with great appetite.* She kept everything upon her stomach without nausea, and from that moment she felt no longer seasick, but, on the contrary, she ate well and soon began to play. The state of the sea had no influence in her recovery, for the weather had been uniformly fair all the time. This is one of the most striking examples of cure we have seen.

We could produce many more clinical reports of trials of this method of treatment, but we judge it unnecessary. It is to be remarked that the above reports cite the disagreeable effects and the failures as well as the advantages and successes of the method. Any physician, on employing the same mode of treatment, would, no doubt, have the same degree of success as we have had.

Conclusions.—1. The principal symptoms of naupathia result from the lowering of the patient's arterial blood pressure. This is a condition *sine qua non* of their development.

2. Seasickness in a person otherwise healthy and not too aged is *promptly curable* in the vast majority of cases.

3. Even in aged persons, or in persons having certain affections of the circulatory apparatus, there is often amelioration of the general condition by the employment of the new method of treatment.

4. The treatment consists in the hypodermic injection of from half a milligramme to a milligramme of atropine sulphate, associated with a milligramme of strychnine sulphate (or nitrate), dissolved in a cubic centimetre of distilled mint water.

5. The administration of these eminently toxic substances demands a great degree of attention, prudence, and supervision on the part of the physician, who alone should be the judge of the opportunity of their administration and of their dose in each individual case. Given at proper times and in suitable doses, however, no harm whatever will follow their administration.

6. The sympathetic nervous system plays a preponderating rôle in the causation of naupathia.

7. Naupathia, or seasickness—an affection without known anatomical lesions, and of which the predominant symptoms have their origin in the nervous system, and especially in the sympathetic or ganglionic nervous system—ought to be regarded as a *neurosis of the sympathetic*.

8. This neurosis may recur during the course of a long voyage, but each attack is almost always amenable to the same treatment.

EXCISION OF SPINA BIFIDA,

WITH RECOVERY.

By CLINTON B. HERRICK, M.D.,

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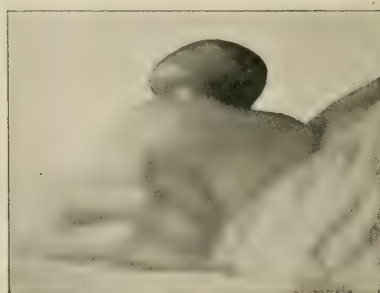
SPINA BIFIDA are not infrequently met with, and when they are it is as often puzzling to the surgeon as to how to handle them. The diagnosis is comparatively easy, but it is not always possible to determine the exact condition of the tumor. Whether the foramen is small or large, whether there is much or any of the cord issuing from the fissure, can only be conjectured.

While in some cases the walls of the sac are so thin as to allow its transparency to assist the observer, in others the skin and sac coverings are thick and boggy, obscuring every sense of determination. Thus it is that the many methods advised and few successes reported embarrass the surgeon in his efforts to relieve his little patient. All au-

thorities seem to agree that an incision into the sac, with a consequent draining off of the cerebro-spinal fluid, is followed by immediate dire results, such as convulsions, shock, and death.

Having observed a case where the sac had ruptured at or before birth, followed by a continuous discharge of fluid without any apparent effect on the mental or physical condition of the child, I formed the idea that evil effects from an incision must be accidental only. Therefore, when confronted by the case to be related, I decided at once to advise complete excision and meet what came:

The child was six weeks old. At his birth a small "lump" was noticed in the lower lumbar region which gradually increased in size. Otherwise the babe was healthy and perfectly formed. No history of specific trouble in the parentage was found, and none others of several children were misformed. When I saw the child in June, 1893, I found an ovoid tumor in the lumbar region about four inches in its longest diameter, or of about the size of the largest orange. It was cystic to the



touch, pinkish in hue, with radiating vessels on the surface. The normal skin extended on both sides up on the tumor to the distance of about an inch and a half, in an irregular line, from where a membranous-looking covering continued over to meet the skin line of the other side. The base constituted a broad pedicle. The size of the foramen could not be determined. Preliminary to operation an aspirator needle was introduced and about three ounces of fluid removed without any unpleasant symptom. On the following day the tumor had resumed its former size.

The Vienna mixture was administered, and the cyst again punctured as before. When it was nearly empty, an incision was made the entire length in the median line, exposing the inside of the cyst. This surface was pinkish and smooth, and leading from a foramen, the size of the end of the little finger, were very large nerve filaments, which coursed on the upper surface of the sac, ending rather bluntly. In addition to the large ones, were one or two thread-like nerves issuing from the foramen. Hemorrhage was considerable. The filaments were dissected from the wall with but little difficulty, and restored into the canal by a probe through the foramen.

Fluid leaked continually. The superabundant sac was purposely cut away down to the level of the skin so as to necessitate some traction on the latter to enforce pressure. Sutures of silkworm gut were placed very close to bring the edges of the wound in tight apposition. At the close of the operation there was no leakage of fluid. Aristol and collodion gauze were quickly applied and firmly bandaged. As all went well, the dressings were not changed for four days. Not an unpleasant

symptom arose during the entire time. The stitches were removed on the seventh day, showing all firmly united, and the child was waxing strong. At the present writing there is no sign of return of the tumor.

A CLINICAL PAPER ON SOME CASES WITH VARIOUS INTERESTING FEATURES.*

1. COMPLETE INVERSION OF THE UTERUS.
2. FRACTURE OF THE RADIUS IMMEDIATELY BELOW THE BICIPITAL TUBEROSITY.
3. INTESTINO-PERITONEAL SEPTICÆMIA.
4. VENTRAL HERNIA.

By IRVING S. HAYNES, M. D.,

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CASE I. Complete Inversion of the Uterus.—Mrs. A. S., aged twenty-one years; first child on November 1, 1888; lived one day; mother made a speedy recovery.

Second child on October 26, 1889; born at 8.15 P. M.; delivered by a midwife, who left about 9 P. M. At 9.30 after-pains began, and became more severe from hour to hour until, about 2 A. M., they called for me (October 27th, Sunday).

On reaching the house, found a strong, healthy young German woman in great pain. Paroxysms every half minute, during which she cried out loudly, rolled from one side of the bed to the other, and bore down very hard. Morphine, a quarter of a grain hypodermically.

Examination.—On separating vulva and removing blood clots, exposed a large, round tumor that forcibly contracted and hardened with every pain.

Tumor as large as a large coconut, reaching just to vulva. Fingers passed all around it below; above it was attached by a broad pedicle to upper part of the vagina.

Abdominal palpation showed no uterus in pelvic region.

During the pains she bore down so hard that it seemed as if she would drive the entire contents of the abdomen through the vagina.

Diagnosis.—Complete inversion of uterus.

Treatment.—Midwife had returned after being sent for. She said she understood giving ether, so I had her start it while I administered a large, hot bichloride douche. The woman did not succeed with the ether, and I had to take the cone. While administering the ether with the left hand, the inversion was reduced by the other in the following manner:

The right hand was well covered with carbolized vaseline, and pressure made upon the lowest and most prominent part of the uterus with the ends of the fingers bunched together. Had to relinquish this manoeuvre, as on very slight pressure the uterine tissue gave way, making a slight tear.

Then the last two sets of phalanges were flexed to a right angle and pressure made with their dorsal surface. Gradually the uterus was indented, and in about twenty minutes fully returned to its natural position. Ether stopped.

A hot intra-uterine bichloride douche (1 to 4,000) given.

Uterus semi-relaxed, reaching as high as the umbilicus.

It was constantly, but gently, manipulated for half an hour, and contractions resulted about every three minutes, but they were so feeble that hæmorrhage was feared any moment, but fortunately did not occur. At the end of this time the uterus became a little firmer, and, when it did contract, produced such

severe pain that morphine was again given to full physiological effect.

About 4 A. M. the uterus became somewhat more relaxed. A hot douche was given with good results for a little while. As it showed symptoms of again becoming relaxed, half a drachm of ergot was administered every half hour.

By 6 A. M. the uterus was in fair shape, only partially contracted, however, and during contractions could be felt as high as the umbilicus; between the contractions it felt like a boggy mass filling the pelvis.

A binder was applied, and ten grains of chloral and fifteen of bromide of sodium were to be given every hour if necessary.

At 10 A. M. the temperature and pulse were normal; the patient was fairly comfortable; did not complain of pain, but left iliac fossa exquisitely tender on touch.

Convalescence was uneventful and steady. The tenderness in iliac fossa left after a saline laxative had been given.

The temperature was highest, 100° F., on the third day, and became normal as soon as needleless feather beds (used for blankets) were removed and a very hot room cooled down.

By the eighth day I found her up and nursing the baby. I ordered her to keep quiet. By the eighteenth day she was doing her own work and said she was as well as ever.

In looking for the ætiology of the case, I asked the old German midwife at the first breathing spell after the reduction of the inversion if she had allowed the "after-birth" to come away by itself. "Why, no," said she. "I helped it along mit der shtring."

If this procedure did not produce the entire inversion, it undoubtedly started it by bringing down a part of the uterus into the grasp of the cervix.

The severity of the pains and the great straining and bearing down while the uterus was inverted were entirely unlike labor pains or any bowel tenesmus, and are peculiar, I think, to this affection alone.

The friability of the uterine tissues impressed me after making a hole in them by the blunt ends of my fingers. However, on turning a still broader surface to the uterus in the shape of the back of my fingers, the uterus was gradually reduced without any other rents being made.

From this experience, I believe it would be dangerous to use any of the instruments advised for this purpose, for I am sure that if the utmost care was not used the instrument could be pushed right through the uterus.

If I had had an instrument in place of my fingers I should never have been aware of the laceration that resulted. I believe the hand is superior to any and all instruments for cases like this.

The prolonged flaccid condition of the uterus after reduction was no doubt due to muscular paralysis following its severe contractions in an abnormal position.

The freedom from hæmorrhage and the scanty discharge afterward were noticeable.

There was no fever whatever due to the accident, but 1.4° due to a hot room and excessive covering.

Occurrence.—Playfair gives the ratio of acute inversion to births as 1 to 190,000.

The symptoms, aside from the tumor, "profound nervous shock, severe abdominal pain and cramp, and bearing down." "Hæmorrhage is a frequent accompaniment," he

* Read before the Society of the Alumni of Bellevue Hospital, October 4, 1893. For the discussion see page 643.

says. In this case there was no shock to speak of, and no hæmorrhage before, during, or after the inversion.

Under reduction, he says, "the inverted portion of the uterus should be grasped in the hollow of the hand and pushed gently and firmly upward into its natural position."

The plan I used is said by McClintock to increase the bulk of the mass and so increase the difficulty of reduction.

In regard to the former opinions, I would ask you to get a large cocoanut—one five inches in diameter—and see how much pressure you can exert upon its sides by grasping it in the "hollow of the hand"; convert the case into one of inverted uterus and you will agree with me that this mode of reduction, while, perhaps, theoretically practicable, is practically impossible. In regard to the latter opinion, I would say that the reduction is easiest and more rational by denting the projecting fundus and so turning the uterus back that the size of the mass to the state of the cervix does not make much difference within reasonable limits, for with the cervix just having expanded sufficiently for passage of the fetal head, it will again expand under an anæsthetic and allow passage of the returning uterus and the hand of the operator.

Probably if I had had one of the large rubber bags and the accompanying force pump at the time, I should have used it, and possibly with complete success. But on the whole I think the hand is preferable, for you then know every change in the surroundings and do not have to go ahead in the dark.

The intra-uterine douches are very beneficial, as all agree, in promoting subsequent contraction. They acted well in this case, but their effect was not of long duration.

CASE II. Fracture of the Radius immediately below the Bicipital Tuberosity.—Harry R., aged four years, July 8, 1891, fell from a bicycle on to right arm. Just how, not known.

Examination, a few minutes after the accident.

Voluntary movements of forearm and elbow lost. Forearm between pronation and supination at right angles to arm. If it is extended, a swelling appears about an inch below the bend of the elbow over the radius. At this point there is abnormal mobility and greatest pain, but no crepitus elicited.

Diagnosis.—As above.

Treatment.—Plaster-of-Paris splint applied, with forearm completely supinated and flexed to ninety degrees with arm.

New splint July 15th. Removed August 4th; union perfect.

Pronation and supination only one third and slight stiffness at elbow, which disappeared entirely after three or four weeks without interference, giving perfect movements at elbow and between the radius and ulna.

The authors all agree in stating that the accident is a rare one.

Treves, in his *Applied Anatomy*, states the symptoms: "When the radius is broken between the insertion of the biceps and pronator radii teres, the upper fragment is flexed by the biceps and fully supinated by that muscle and the small supinator. The lower fragment will be pronated by the two pronators and drawn in toward the ulna by means of those muscles."

This case illustrated these theoretical symptoms almost perfectly.

On extension of the forearm the upper fragment was retained in a position of flexion, and no doubt supination; the swelling over the forearm and just below the elbow was due to the projection forward of the upper fragment on extension; it disappeared on flexion. The hand was held in a position midway between pronation and supination.

The position of full supination was well borne—in fact, caused no inconvenience whatever, for the boy made no complaint at any time.

The stiffness in the forearm movements disappeared on allowing the child to use its arm without any interference.

I believe in the teaching of Professor Stimson, that the fear of joint ankylosis—ankylophobia—and the consequent passive motion kept up in season and out, is responsible for many cases of limited or even no motion after such injuries.

I believe in letting them entirely alone for a reasonable time, and let the patient use his limb to suit himself.

I have seen complete ankylosis at the elbow following a dislocation entirely recovered from in eight weeks without any treatment whatever.

CASE III. Intestino-peritoneal Septicæmia.—Mrs. S., aged twenty-six years, February 21, 1892, delivered of a good-sized boy after a labor of about ten hours. At the beginning of the labor the ostium vaginae would barely admit two fingers, which caused considerable pain. The perineum was dense and firm and was stretched intermittently by bearing downward and backward until three, then four fingers, and finally the whole hand was admitted. At the delivery the perineum was only slightly nicked, but I am confident would have been split to the anus but for the intermittent stretching. This procedure was suggested in the *Record or Journal* by a writer. I can not find the article now.

Case progressed perfectly normal without a single bad symptom until the 28th—seven days after the confinement.

On the 28th, at 4 p. m., she had a severe chill. At 7 p. m., temperature, 104° F.; pulse, 150; respiration, 24. Very restless, face flushed, skin hot and dry, felt very badly, was afraid she was going to die.

Carbolic douches had been given morning and evening from the first. The lochia had been natural and without odor for the entire time. The bowels had not moved since the 26th.

Tablespoonful doses of Tarrant's aperient were ordered every hour until the bowels moved. Five grains of sulphate of quinine every four hours.

February 29th, 10 A. M.—Temperature, 104° F.; pulse, 150; respiration, 24. Symptoms not improved. Bowels had not acted freely.

Thinking that perhaps there might be some trouble in the uterus, I gave chloroform and curetted, but it was absolutely free from the least trouble whatever.

Intra-uterine douche of carbolic solution. Salines kept up. During the afternoon the bowels moved three times; 7 p. m., temperature, 103° 4' F.; pulse, 120.

March 1st, A. M.—Temperature normal; bowels moved several times during the night. Feeling all right, but weak. Recovery uninterrupted.

Here is a clear case of self-infection from intestinal bacteria allowed to develop during two days of constipation and probably penetrating to the peritoneal cavity. Relieved by free saline cathartics. I do not think anything else had any bearing upon the treatment, except possibly

the carbolic douches might help to restrain bacterial action; but just as soon as the bowels began to act freely and afford free drainage from the abdominal cavity the symptoms began to mend. I believe that in these cases, even when the septicæmia is due to uterine infection, saline cathartics, plus the intra-uterine treatment, are the most useful means we have to prevent further infection.

CASE IV. *Ventral Hernia*.—Mrs. B., aged about forty-five years. Large-sized woman; mother of large family.

In 1883, after birth of a child, noticed a lump between navel and pubes. This gradually increased in size without causing her any particular discomfort. Was reducible itself on lying down.

In 1885 began to wear a large pan-shaped abdominal truss that did not keep the rupture in place.

In 1887 she had an attack of obstructed bowel. Tumor came down, was painful, and the bowels constipated. The doctor called administered a cathartic, which acted. The attack only lasted two days, but the lump did not go away for two weeks.

The case was uneventful, excepting chronic constipation, until March 24, 1891, when the rupture again came down and could not be reduced. They called for me and I found the usual symptoms of an obstructed hernia. The hernia was larger than usual, she stated; was about six inches in diameter, circular in shape, and most prominent point about two inches above proper level of the abdominal wall; tender to touch; considerable pain. Attack brought on by hard work at lifting furniture, etc., in spring cleaning.

An eighth of a grain of morphine every hour if necessary. Hot poultices. Operation advised but not accepted. Bowels moved satisfactorily on the next day after a high injection and the tumor diminished in size, but a large, doughy mass remained behind.

She finally consented to the operation and was prepared for it with diet and whisky until the 28th, when, with the help of Dr. Bauer, Dr. O'Neil, and Dr. Welch, the operation was undertaken.

All precautions against shock and sepsis taken.

Usual incision. Sac opened at once; consisted only of peritonæum and skin closely blended and much thinned from pressure.

A dark mass of omentum exposed. It was attached by its base to the sac all about the hernial orifice.

Adhesions broken down and omentum examined for contained intestine, but none found. The omentum from the congestion and hyperplasia was nearly half an inch thick and, when spread out, six or eight inches wide along its outer margin, being, of course, fan-shaped. It completely filled the opening of the sac.

It really looked as if a process of degeneration had begun in it, and it was deemed best to remove it. This was accordingly done in the usual manner by several interlocking silk ligatures. Pedicle examined for bleeding points; none being found, it was returned to abdomen. Opening of hernia circular and about an inch in diameter. The sac for a distance of about two inches around the orifice was dissected up and its neck freed from the fibrous ring. Neck of sac tied off by a heavy silk ligature and the rest cut away. The margins of the ring were brought together with heavy buried silk sutures. The redundant portions of skin removed and the edges sutured. Drainage-tube inserted. Heavy dressing applied.

Convalescence progressed favorably with some little fever. On the fifth day superficial sutures and tube were removed. Union firm. The external wound closed up, yet there was some pain about the seat of operation and a degree or two of fever.

About two weeks later a definite point of fluctuation below and to the right of the incision was detected. This abscess was opened and a drachm or two of pus evacuated, in which was one of the deep sutures. This abscess discharged until all the deep sutures were removed. It then closed up and left only a small scar. The sutures were divided and taken out as fast as they appeared; a probe curved at the end was used to nook then into the wound so they could be removed. Patient was up and around the house during this time. After the last suture was removed the sinus closed and she wore a light bandage, which she continued for some months.

There was no return of the rupture until the spring of 1893—about two years—when she said a small lump appeared. Had not been wearing bandage for over a year. She was ordered to resume its use.

September 30, 1893.—Examination: She states rupture comes down, but she can replace it. She can not find the opening, however. When fully distended, rupture as large as a small orange. The rupture was not down at the time of examination. The orifice of the hernia was found, but would not admit any of my fingers. It is situated half way between umbilicus and pubes in median line. On coughing, a small knuckle of gut is forced out, but immediately returned to abdominal cavity on slight pressure.

Another operation advised with pretty sure hopes of cure, but she has all she wants of operations, she says. Bandage advised and a truss later if she can not get along.

If no operation had been done it is possible that the mass of omentum might have become so adherent to the ring as to close it up and produce a cure; yet the dangers of intra-omental hernia would have remained. On the other hand, the omentum might have sloughed, for it was very dark and congested. If the ring had been closed by perfectly aseptic catgut sutures the suppuration would have been omitted. It is probable that one or more of the sutures carried the infection. At any rate, the wound did not close until the last of them was removed. Yet all this time the silk on the pedicles of the omentum and peritonæum gave no trouble, and the cutaneous incision, also sutured with silk, closed without suture abscesses.

The suppuration had nothing to do with the return of the hernia, to my mind, for the reason that the granulation tissue formed on cicatrizing would aid in closing the orifice. If, however, the orifice gaped and the connective tissue alone remained, a weak spot was surely left.

Doing the operation again I would still use silk, but would redouble all antiseptic efforts.

The woman is well to-day and the operation has served to clean out all the omentum and to give us a hernia with a small orifice—a favorable condition for operation, but much more dangerous for the woman.

After the operation there was freedom from a hernia for nearly two years.

131 EAST EIGHTY-SIXTH STREET.

The Royal College of Physicians, of London.—A very close vote occurred in the college on the occasion of the recent election of a new president in place of Sir Andrew Clark, deceased. Dr. J. Russell Reynolds had seventy-five votes, while Dr. Samuel Wilks received seventy-two votes. The former represents the interests of University College; the latter those of Guy's Hospital.

THE
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THE NEW PHARMACOPEIA.

THE seventh decennial revision of the United States Pharmacopœia, nominally for 1890, has recently been published, and is to be official from January 1, 1894. In size and general appearance it does not differ materially from the Pharmacopœia of 1880, but, if our memory serves, the delay in its appearance has been more considerable. The strict alphabetical arrangement of subjects adopted in the Pharmacopœia of 1880 has been retained, and this fact, it seems to us, goes far toward making the book useful to pharmacists rather than to physicians; but this defect, from our point of view, is mitigated by the fact that a list of preparations into which each individual drug enters is given at the conclusion of the article on that drug. Nevertheless, some confusion may arise in certain instances—for example, the new Pharmacopœia contains no such heading as *aloes*, but it does give *aloe barbadensis*, *aloe purificata*, and *aloe socotrina*, while under the head of *extractum aloes* it says “*aloes*, one hundred grammes,” etc. It is true, however, that the name of the preparation *extractum aloes* is given at the conclusion of the article on *aloe socotrina*, and not in the article on any other form of *aloes*, so that the student who happens to possess the perseverance of an antiquary may ascertain, if he takes the trouble, that when, under the head of *extractum aloes*, “*aloes*” is specified, *socotrine aloes* is meant. The following statement is made in the preface: “A strong effort is at present being made both in Europe and in this country, though not, as yet, by concerted action, to reform the chemical nomenclature, more particularly with the object of making the name of a substance convey, as far as possible, some information as to its nature and constitution, or as to the class to which it belongs. An appeal was made to the committee of revision to join in the movement—in fact, to adopt the newly proposed spellings and terms. Among these propositions were the spellings: bromin, chlorin, fluorin, and iodin, for bromine, chlorine, fluorine, and iodine; bromid, chlorid, iodid, oxid, sulphid, etc., for bromide, chloride, iodide, oxide, sulphide, etc.; aconitin, morphin, quinin, etc., for aconitine, morphine, quinine, etc.—thus abolishing the hitherto prevailing distinction in spelling between alkaloids and so-called neutral principles—sulfur, sulfate, etc., for sulphur, sulphate, etc.; glycerol, benzene, etc., for glycerin, benzol, etc. While some of the members, individually, were willing to approve and adopt at least some of these new spellings in their professional writings, the decision, so far as the Pharmacopœia is concerned, was almost unanimously against their adoption at this time, it being deemed unsafe and unnecessary

to inaugurate such radical changes, not yet generally accepted or followed in practice, in the names of medicines familiar, under their present garb, to so large a proportion of the population.” For this we are thankful; there has of late been shown what we are constrained to consider an undue propensity to change the forms of old and familiar words.

We find that ninety titles have been dismissed from the Pharmacopœia, and that eighty-eight have been added. Those dismissed include all the abstracts, and we think their rejection was justified. The more important of the articles added are acetanilide, convallaria, menthol, naphthaline (called in the Pharmacopœia *naphthalinum*), naphthol (*naphtol*), pancreatin, paraldehyde, pyrogallol, resorcin, strophanthus, terebene, and *Viburnum opulus*.

THE EFFECT OF “CASTRATION” ON WOMEN.

THERE is probably no question in gynecology regarding which more divergent views are entertained than that of the effect of “castration” on women. Dr. William Goodell publishes in the *Medical News* for December 9th an interesting contribution to this question. He agrees with Hegar that the artificial menopause induced by operation is often attended with more serious complications than those that are not rarely observed in the natural change of life. Then, again, mental disturbances, manifested by brooding, by low spirits, by melancholy, and even by insanity, may be traced directly to oophorectomy as a cause. Keith has stated that ten per cent. of his patients that recover from hysterectomy subsequently suffer from melancholia or from other forms of mental disease; and another author declares that in almost all cases the mind becomes more or less affected, and not infrequently melancholia results.

In his earlier teachings Dr. Goodell maintained that oophorectomy after puberty did not completely unsex a woman; her capability of being impregnated was lost, but her sexual feelings remained much the same. In this he agreed with Kæberlé, who held that it caused no marked change in the condition of those that had been operated on; they were women that had abruptly reached the climacteric, but their instincts and affections remained the same, and their sexual organs continued to be excitable. But a riper experience has forced him to the conclusion that in the majority of women that have been “castrated” the sexual impulse soon abates in intensity, much sooner than after the natural menopause, and that in many cases it wholly disappears. This corroborates the report of the special committee appointed to investigate Imlach's cases of “castration” at the Woman's Hospital in Liverpool; they found “a distinct loss of sexual feeling to such an extent as to cause serious domestic unhappiness in not a few instances.”

Otherwise he has found no marked physical or psychical change. The affections remain the same, the breasts do not flatten or wither, obesity does not ensue, neither facial nor corporeal hirsuties follows, and the tone and quality of the voice are unchanged; in other words, there is no tendency toward any characteristics of the male type. If any change takes

place, it has been in the direction of old-maidhood. But the loss of sexual feeling has caused broken engagements, conjugal estrangements, and marital infidelity.

In consequence of this experience, he advises that an effort be made to restore a woman's health by resorting to other than operative procedures. If oophorectomy is the *dernier ressort*, then, he says, never remove a healthy appendage unless the menopause is already established or unless there is good reason for hastening it. The latter may be the case for women with excessive or abnormal sexual appetites consequent upon continuous ovarian or uterine irritability that is the result of some local disease; in such, oophorectomy usually results in the extinction of the appetite. Should the uterine appendages be merely adherent and not intrinsically diseased to any extent, and should there be active menstrual life, we may release the appendages and perhaps remove the more diseased of the two, but not both of them. Even a small fragment of ovarian stroma that is left behind may prevent any menstrual or sexual change whatever occurring in the woman.

This exposition of some of the unfortunate ulterior consequences of "castration," and this plea for greater conservatism in resorting thereto, should receive wide attention in a country where physicians are all too ready to assume that an operation will relieve the symptoms attendant upon ovarian or uterine disease.

MINOR PARAGRAPHS.

THE SICK BAY ON THE MAN-OF-WAR NEW YORK.

WE copy from one of the daily papers a portion of its description of the hospital accommodations on the New York. It has been stated officially and otherwise that this provision was of an inadequate nature, but we had not imagined for a moment that the government of any civilized country could permit a state of things such as this is described to be. The ship should not be allowed to go out of port without this fault having first been remedied.

"The New York man-of-war is getting ready for sea. The vessel will have six hundred men on board when she goes out, and it is believed her destination will be Brazil, where disturbances are quite possible and where diseases lurk in the air. For these six hundred men there are hospital accommodations which will hold just two at a time. If three men are sick enough to go to hospital, two can be taken to the 'sick bay' or hospital, and the other one can be thrown overboard, but in no event can he be taken to the sick bay, because there is only room for two there at a time. This sick bay is at the extreme forward part of the ship with the anchor chains making music through great tubes at the head of the inclosure and with the dynamite room on the immediate right. Back of the sick bay is what is called the surgical 'operating room.' It is a bathroom. They put a board over the bath tub and that is the operating table."

ANOTHER NEW HOSPITAL SAID TO BE NEEDED.

ONE or two of our daily papers call attention to the difficulty and delay that often attend the disposition of persons with acute mania. It is held that there is need for some provisional infirmary where the violent insane may be properly cared for before they are regularly committed to an asylum. It might even be that, in such special provision, some patients

might recover without the odium of a recorded transfer to a lunatic asylum. At present the "cells" of Bellevue meet the requirement in a measure.

THE PRESBYTERIAN HOSPITAL.

THE annual report of this institution shows a large increase of its benefaction to the poor as compared with former years. The average of daily occupied beds has risen from 133 to 155; the number of persons who received treatment in the hospital was only a little short of 5,000, and the ambulance calls were over 1,800. The dispensary shows a large increase of work performed, the total number of patients treated having risen to 10,626. In the hospital proper the total number of days of treatment was 56,500, with an expense account of \$58,063, which is tantamount to a per diem cost of \$1.02 for each patient. A legacy of \$217,000 from the estate of Mrs. Mary Stuart was received during the year.

SOMETHING OF AN ANTICLIMAX.

THE St. Louis *Globe-Democrat* recently published a communication from a physician the purpose of which was to show that the late Emperor of the French died from poisoning with chloral. The communication is interesting, especially the following statement: "The action of the chloral upon Napoleon was to produce great depression, followed by a profound euthanasia that ended in an eternal sleep—the sleep of death."

ITEMS, ETC.

The Death of Dr. Samuel H. Olmstead, of Brooklyn, took place on Friday, the 22d inst., from cerebral hemorrhage. He was born in New Haven about sixty years ago, and was educated at Yale College, both in arts and in medicine. He took his medical degree in 1861. He served as a medical officer of the army during the greater part of the War of the Rebellion, and reached the rank of brigade surgeon. He then established himself in practice in the southern district of Brooklyn, and early gathered to himself a select and appreciative clientele. He was for a time a member of the surgical staff of the Long Island College Hospital.

The Death of Dr. S. Guttman, of Berlin, is announced by cable as having occurred on December 22d from influenza. He had been the editor of the *Deutsche medicinische Wochenschrift* since 1885, and held the rank of privy councillor.

The Brooklyn Board of Health.—The mayor elect of Brooklyn has announced, among other proposed appointments, that Dr. Z. Taylor Emery has been selected to be the head of the department of health, to succeed Dr. J. Griffin, who has been in office since 1888. Dr. Emery is an ex-president of the Medical Society of the County of Kings.

The Clinical Society of the Elizabeth, N. J., General Hospital.—At the last meeting, on Tuesday evening, the 12th inst., Dr. T. N. McLean read a paper on the *Ætiology and Treatment of Pulmonary Tuberculosis*.

The Shooting of M. Gilles de la Tourette, concerning which some of the French newspapers seem to have built numerous fanciful theories as to the assailant's motive, appears to have been simply the act of a lunatic, according to our Parisian medical contemporaries. We are glad to learn that the ball, having struck the occipital bone obliquely, became lodged outside the bone and was readily removed.

Change of Address.—Dr. J. N. Bartholomew, from Trenton, Ohio, to 52 Lincoln Avenue, Chicago.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 17 to December 23, 1893:*

KULE, JOHN S., Lieutenant and Assistant Surgeon, is relieved from further duty at Jackson Park, Chicago, Ill., from December 23, 1893.

CALDWELL, DANIEL G., Major and Surgeon, is hereby granted leave of absence for one month, to commence about December 22, 1893.

BANISTER, W. B., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect about the 20th inst.

Society Meetings for the Coming Week:

MONDAY, January 1st: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; Chicago Medical Society; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society.

TUESDAY, January 2d: New York Neurological Society; New York Obstetrical Society (private); Medical Societies of the Counties of Broome (quarterly) and Niagara (semi-annual—Lockport), N. Y.; Buffalo Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburg, N. Y., Medical Association; Hudson (Jersey City), and Union, N. J., County Medical Societies (quarterly); Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore); Androscoggin, Me., County Medical Association (Lewiston); Chittenden, Vt., County Medical Society.

WEDNESDAY, January 3d: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Bridgeport, Conn., Medical Association; Penobscot, Me., County Medical Society (Bangor).

THURSDAY, January 4th: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Obstetrical Society of Philadelphia; Boston Medico-psychological Association; United States Naval Medical Society (Washington); Washington, Vt., County Medical Society (annual—Montpelier).

FRIDAY, January 5th: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, January 6th: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

ence is so direct that the physicians who received the calendar can not but know to whom you referred.

It has been our custom for several years to send to the medical profession throughout the United States portraits of eminent physicians and surgeons, and, inasmuch as their distribution has been scrupulously confined to medical men of good repute, no objection has been offered by those gentlemen whose likenesses we reproduced. Not a copy of this calendar, nor of any of our other numerous publications, has ever been sent to the laity.

Maltine is distinctly not a "patent medicine," nor has it ever been advertised to the public, and therefore we have considered it within our province to distribute portraits just as we have promulgated testimonials from the most eminent physicians and chemists in this country and Europe.

We have statistics to prove that ninety per cent. of the physicians of the United States prescribe maltine. This fact, in addition to the fact that we reach the patient *only through the physician*, would seem to amply vindicate our use of the likeness of a physician whose pictures are on public sale and have continually appeared in the public press, and who is well known as a public man.

The portraits referred to were not used to push the sale of our preparations, as was the portrait of Dr. D. Hayes Agnew, recently published by us. It will be remembered that we printed under Dr. Agnew's portrait a facsimile of his indorsement of maltine. Our only reason for publishing the portrait of Dr. — was because we thought it would interest his medical brethren, who have shown so high an appreciation of the series of likenesses we have already published.

We should like further to say that as soon as objection was made by him we suspended the distribution of the calendars, as we would not knowingly offend even one of the honorable profession to whom we are so greatly indebted.

THE MALTINE MANUFACTURING COMPANY.

Reports on the Progress of Medicine.

ORTHOPÆDIC SURGERY.

By HENRY LING TAYLOR, M. D.

Scoliosis.—A good deal of attention, especially in Germany, has lately been paid to improved methods for the forcible correction of resistant lateral curvatures, and the subject is practically treated of by Dr. Bradford and Dr. Brackett in a recent paper (*Boston Medical and Surgical Journal*, May 11, 1893). The authors use a modified Hoffa's standing frame for applying pressure to the two prominent parts of the thorax, and put on a fixed plaster jacket while the patient is in the frame. When the limit of improvement by these means is reached, a laced paper jacket, according to the method of Dr. Weigel, of Rochester, is employed, and the use of the correcting frame is continued as an exercise.

The authors also describe a correcting frame for use in the recumbent posture. They state that "by no means of forcible correction can vertebrae already altered in shape be restored to shape or entirely corrected," but they report favorable results, especially where faulty attitudes constitute the danger of an increase of the curvature.

Scoliosis and Flat-foot.—In an investigation of 1,000 hospital patients, Dr. L. Heusser found (v. *Langenbeck's Archiv*, vol. xiv, No. 4) that, of 663 men, 188 had scoliosis, making twenty-eight per cent., while there were 147 cases among 337

Letters to the Editor.

THE PUBLICATION OF PHYSICIANS' PORTRAITS.

NEW YORK, December 26, 1893.

To the Editor of the *New York Medical Journal*:

SIR: Your reference to our calendar for 1894 demands our attention. While you did not mention us by name, the refer-

women, making forty-three per cent. There were also 283 cases of flat-foot, equally divided between the sexes. Of these, 283 flat-footed individuals (fifty-nine per cent.) had scoliosis, while of the 717 not flat-footed, only twenty per cent. had scoliosis. Half of the scoliotic patients had flat-foot also.

For comparison, 250 children from the asylums were examined, of whom 64 had scoliosis and 65 flat-foot. Of the boys, eighteen per cent. had scoliosis, and of the girls, twenty-six per cent.

Of the 185 who did not have flat-foot, 40, or one fifth, had scoliosis, while, of the 65 who were flat-footed, 24, or more than one third, had scoliosis. Bowlegs or knock-knees were found in five per cent. of the children who had the spinal or foot deformity, but only in one per cent. of those who had neither scoliosis nor flat-foot.

The author notes that scoliosis is found in robust and muscular individuals as well as in the delicate and anæmic, but he believes that the cause is to be found in rachitis. He recommends the use of a couch combining head and shoulder extension with a system of padded bands for lateral correction. The direction and amount of force applied by the bands is determined by appropriate weights and pulleys. Children can bear this kind of correction for one to two hours daily.

Scoliosis with Sciatica.—The relation between sciatica and scoliosis is discussed (*Lyon médical*, Feb. 5, 12, 19, 26, and March 12, 1893) in an interesting paper by Dr. A. Françon, who relates six cases of "crossed" scoliosis due to sciatica, cured by the thermal treatment of Aix-les-Bains.

The author refers to sixty-seven cases of scoliosis due to sciatica, reported in medical literature, nearly all in Germany, France, and Austria, and occurring since 1888. Of these, fifty were of the "crossed" type, the convexity of the scoliosis being on the side opposite to the sciatica, while in fifteen patients the scoliosis was on the same side. In two of the patients the scoliosis was sometimes on the right side and sometimes on the left, and in one of these it could be shifted from one side to the other at will.

In the first class of cases—"crossed type"—a patient who has left sciatica, for example, perceives at the beginning of the affection, or after a longer or shorter time, that the upper part of the trunk is inclined to the right, and the weight of the body rests upon the right leg. There is sometimes a certain degree of kyphosis at the same time. The shoulders may be inclined from or toward the affected side. There is a difference of opinion as to the ætiology of this affection. The author believes that the attitude is instinctively assumed to ease the pain, and because of a paretic condition of the lumbar and gluteal muscles of the affected side. The deformity is proportionate to the intensity of the pain, and usually disappears on its subsidence. Exceptionally it may persist as the result of permanent shortening of the affected muscles. One case is reported where the deformity remained after fourteen years, and another after eighteen. In one patient there was right scoliosis with left sciatica at the age of thirty-five years and left scoliosis with right sciatica twenty years later.

Scoliosis of the same side is variously explained as being due to reflex spasm of the muscles supplied by the lumbar plexus of the same side, to the extension of inflammation to the meninges of the spinal cord, and to a position of greatest ease.

The treatment consisted of steaming, followed by the hot douche and massage. After a few days a douche of lower temperature was used. The author found a rheumatic history in most cases, and remarks that the same treatment is not always applicable.

Dr. F. Peterson gives the following résumé (*Am. Medico-Surgical Bulletin*, November, 1893) of the conclusions of Dr.

L. Mann (*Deutsch. Arch. f. klin. Med.*, July, 1893) from a study of forty-seven cases of sciatica of the ordinary form and six cases with scoliosis:

1. That sciatica is frequently accompanied by paresis, not only of the muscles supplied by the great sciatic nerve, but also of those innervated by other branches of the lumbo-sacral plexus.

2. The paretic muscles, as a rule, are only slightly atrophied, and exhibit little or no morbid change when stimulated by electricity.

3. Should the paresis reach the erector spinæ muscle, typical scoliosis, with the convexity pointing toward the affected side, ensues.

4. In sciatica the pain may be only one-sided, and yet a bilateral motor paresis may exist. In such a case, should the erector spinæ of the non-neuralgic side be involved, it is possible for a homologous scoliosis to occur—i. e., a scoliosis with the convexity directed toward the non-neuralgic side.

5. If the sciatica is accompanied by a bilateral paresis of the abdominal muscles, as sometimes occurs, lordosis may follow—a condition which may be called *ischias lordotica*.

Pott's Disease.—Dr. A. B. Judson points out (*Jour. of Surg., Gyn., and Obst.*, September, 1893), as has previously been done by Whitman and others, that the middle and upper dorsal regions of the spine are peculiarly exposed to mechanical strains, and that disease in those regions is more tedious and severe than in cervical and lumbar caries. The author sees in this circumstance "a striking illustration of the fact that recovery from articular osteitis is postponed by unfavorable mechanical environment," and an indication for the thorough employment of mechanical means to relieve the diseased bone of weight-bearing and of motion so far as may be. While not condemning the use of jackets of the materials in ordinary use, when more perfect apparatus is not available, the author prefers an antero-posterior leverage support constructed of mild steel, so that the degree and direction of pressure may be accurately applied and modified by the surgeon to meet the changing shape and conditions of the spine.

Division of the Tendo Achillis.—Modifications in this operation are described by Dr. H. A. Wilson (*Internat. Med. Mag.*, August, 1893), as devised by Mr. William Anderson and Dr. Weir Mitchell. According to this method, first practiced in this country by Dr. W. W. Keen, the tendon is exposed by a free incision, split longitudinally for a sufficient distance, and each half cut through at opposite ends and sides of the long cut, so that the tendon can be lengthened by a definite amount and sutured in the position of choice. Dr. Wilson suggests that tendons may be shortened in a similar manner. Dr. Trnka reports another method of tendon suture in the *Centralblatt für Chirurgie*, March 25, 1893. It is probable that most of the drawbacks of the simple subcutaneous section of the tendo Achillis would disappear—sufficient attention were paid to the mechanical after-treatment of the foot.

Hammer-toe.—At a recent discussion at the Société de chirurgie de Paris (*résumé in Revue orthopédique*, July, 1893) on the treatment of hammer-toe, favorable results were reported in thirteen cases from the operation suggested by Dr. Terrier in 1888. This operation consists in exposing the deformed joint by a transverse dorsal incision, cutting the extensor tendon and the lateral ligaments, and then excising the joint. This was followed in every case by an ankylized joint and the cure of the deformity. Most of the speakers approved the procedure.

Voluntary Luxation of the Patella.—Dr. PROCAS reports (*Revue orthopédique*, September, 1893) such a case in a boy of fourteen, who had had rickets and genu valgum, which per-

sisted to a slight degree at the time of the examination. The patient walked without limping, and only when the left knee was flexed to at least a hundred and forty-eight degrees, and the biceps was suddenly contracted by the patient, was the outward luxation effected. This was painless and complete, so that the patella lay on the external surface of the external condyle, its inner border pointing forward. By a voluntary muscular effort the luxation was easily replaced. The author believes that a rachitic deformity of the femoral condyles and genu valgum furnished the conditions which made the displacement possible.

Congenital Malformation of the Scapula.—One of the causes of high shoulder is believed by Dr. Kirmesson (*Revue d'orthopédie*, September, 1893) to be congenital malformation of the scapula. He reports two cases, one in a girl of eleven, the other in a girl of four; both had slight non-progressive sigmoid lateral curvature, one to the right and the other to the left. In both, the right scapula was considerably elevated and rotated so that the inferior angle was displaced outward. The author does not connect the displacement of the scapula with the lateral curvature, nor with muscular anomalies, but believes that a congenital deformity of the scapula is the primary cause. As the power of elevating the arm was interfered with in both cases, was the possibility of a birth palsy or infantile cerebral palsy sufficiently considered?

Oblique Osteotomy.—Professor Broca maintains that there are advantages (*Revue orthopédique*, July, 1893) in an oblique osteotomy in certain cases of ankylosis at the hip, and of genu valgum.

Traction in Hip Disease.—An interesting experimental study of the question, "Does traction distract?" has recently been contributed (*American Medico-surgical Bulletin*, November, 1893) by Dr. E. H. Bradford. He remarks that "slight motion, if all intra-articular pressure were removed, would not be as injurious as the exaggerated constant articular pressure without motion. An articular bone surface freed from pressure heals, as is seen in cases of amputation at the hip, when a carious acetabulum will be seen to cicatrize entirely."

Repeated careful experiments on the cadaver showed that, "when a force is applied sufficient to overcome the muscular resistance, distraction takes place, except when checked by the ilio-femoral ligament. When this is relaxed by putting the limb in a proper position, marked distraction can readily be made." He concludes, from the experiments on diseased hip joints in the living subject, "that traction in hip disease, if properly applied, distracts, and that distraction can be made by a traction force feasible in practice; that no distraction takes place under a traction force of a few pounds."

The examination of pathological specimens shows that the head of the femur in hip disease is pressed against the acetabulum in a direction upward and backward, and traction should be applied in the opposite direction.

"As pathological evidence is conclusive that distraction, if possible, would be advantageous in treatment, it is impossible to avoid the inference that, in the treatment of hip disease in the active stage, distraction should be employed."

A pathological specimen is described, "which would appear to demonstrate that hip disease of a severe type, attended by supuration, can, if carefully treated by traction for years, be cured without subluxation, distortion, or enlargement of the acetabulum—a result not found in cases not treated, or treated without thorough traction."

The author found that traction at the knee was checked by the ligaments when the knee was fully extended; but he says: "If the knee is slightly flexed, so as to relax the strong fibers of these ligaments, traction makes a noticeable distraction."

Congenital Luxation of the Hip.—In order to study the pathogeny of this affection, Dr. R. Sainton reports (*Revue orthopédique*, July and September, 1893) the results of anatomical investigations into the structure of the hip joint in infancy. He finds that in infancy the neck of the femur is very short, and its diameter, as well as that of the head, relatively greater than in the adult, while the acetabulum is relatively shallower; the head is principally held in position by the posterior wall of that cavity. These characteristics are such that the head of the femur would be more easily luxated than in an adult; a comparatively slight malformation would suffice for the production of this result.

An arrest of the development of the borders of the acetabulum is probably the primary cause of so-called congenital luxations of the hip. This displacement does not always exist at birth, but is imminent if the above-mentioned condition is present. The cause of this arrest of the development of the cotyloid margin is obscure, but does not seem to exist in the premature ossification of the Y-cartilage, as has been claimed.

Congenital Hip Dislocation.—The treatment of congenital hip luxation, heretofore in the main unsatisfactory, seems to have made real progress, judging from the recent studies of several observers, notably Hoffa and Paci. The latter has given a full explanation (*Gaz. méd. de Paris*, March 25, April 1, 22, 29, 1893) of his method, which has been successfully practiced by others. The method consists in manual replacement under anæsthesia, and in holding the replaced bone in position by a fixation apparatus "until the opposing surfaces are reciprocally modeled" and form a more or less functionally perfect joint.

The replacement consists of four steps. The first is flexion of the leg on the thigh and of the thigh on the pelvis, in order to relax the muscles opposing reduction, and to bring the femoral head into the vicinity of the acetabulum. After flexion is complete the descent of the femoral head is assisted by pressure downward applied over the knee. The second step consists in a slow movement of abduction from the knee in its flexed position. This movement should bring the knee about six inches from the lateral plane of the body, and carry the femoral head forward near the space normally occupied by the acetabulum. In the third step, starting from the position last acquired, the leg is held flexed at a right angle and the thigh is slowly everted, with increased abduction, until the axis of the leg held at a right angle is perpendicular to the axis of the body. Having thrown the femoral head forward and inward into the cotyloid space by this manœuvre, the fourth step consists in a gradual extension of the thigh by the pressure of the hand upon the knee, while the other hand holds the foot, the flexed leg, and the whole limb in external rotation. With the head of the femur in the cotyloid space as a fulcrum, the anterior muscles are put on the stretch by this movement of extension, and their resistance must be gradually overcome; they will finally yield, and the leg will come down parallel with its mate, but eversion and a certain amount of traction must be maintained.

All the movements, and especially the last, must be executed with great care and deliberation. In some cases the correction appears to be complete, but a shortening of from three eighths to three fourths of an inch usually remains, owing to the incomplete development of the acetabulum, which also permits a recurrence of the displacement if the thigh is flexed or everted. The after-treatment consists in applying a plaster-of-Paris splint to the limb and pelvis, to maintain the corrected position. This is done while the patient is still anæsthetized, and the limb is pulled down and strongly everted; sometimes the limb is also abducted. A weight of from eight to twenty pounds is also applied to the leg. This apparatus remains on for a month, and

the extension with the weight is continued for three months longer. After this the limb is bandaged and the patient walks on crutches for four months, but extension is continued at night. After walking another four months with a cane, the patient is allowed to walk without support, other than a body brace.

The author reports ten patients, between the ages of eight and sixteen, treated by his method between 1886 and 1891, in all of whom there was a marked gain in the position and function of the limb.

Miscellany.

Scientific Teaching in Medicine was the title of an introductory address delivered at the opening of the session of 1893-'94 of the Medical School of the Catholic University, Dublin, by Dr. C. J. Nixon, professor of medicine, and published in the *Dublin Journal of Medical Science* for December. After some introductory remarks, the author proceeded as follows:

"*A School of Medicine an Object of Public Interest.*—I would first of all point out that it is quite an error to suppose that the progress of a school of medicine is a matter which concerns only those who are responsible for its organization. Its progress much more closely concerns the public at large. It is here that young men are taught that which is the aim and business of their lives. They come to us young and inexperienced, impressionable for good or evil, and upon the lessons which they learn, and the habits of thought they acquire, depends the course of their future, whether that be one of usefulness to their fellow-man and honor to themselves, or one of failure and disappointment. Apart, too, from its teaching purpose, a medical school fulfills another function. It is a center in which is collected a number of earnest and thoughtful men, each one interested in the progress of his own special department, adding to the storehouse of facts, and aiding by investigation and research the aim of medicine in relation to disease and its prevention. It is scarcely possible that the work of such men can be without influence upon their fellows, or that the community at large will not be the gainers by their labors. A school of medicine, like the university of which it forms a part, may be regarded as a fair index of the intellectual life of the nation, and no small degree of material prosperity or the reverse may be traced to its success or failure. The nature of the work done in it may, too, be regarded as a measure of what is taking place in the world at large from the fact that medicine is probably more sensitive to changes outside itself than any other branch of human knowledge. It deals not alone with physical but with psychological phenomena—with the social influences of wealth and poverty; peace and war; birth, development, and decay. Everything that affects the environment of the individual must influence the conditions of his mental and physical state, and so lead the physician into trains of inquiry, into the varying phenomena of existence, and the diseases that follow in their wake. For these reasons it is a matter of general interest to show how this school stands as a center of medical teaching, to analyze the work it has done, estimate our gains, note our defects, and formulate, if possible, schemes for their redress.

"In endeavoring to point out the present position of medicine, considered only in its scientific aspect, I need hardly say that the description attempted of the successive stages of development of each branch must be sketchy in character, and that only those developments which mark eras in progress can be noticed.

"*The Scientific Position of Medicine.*—It will be conceded by all that the present position of medicine as a science depends upon the progress which has been made, especially during the latter half of the present century, in those subjects upon which it rests, as on a tripod—viz., anatomy, physiology, and pathology.

"*Anatomy.*—Of anatomy, I need say but little. It holds, and always will hold, in medicine the position of being the keystone of the arch, the basis upon which are built all other branches of medical knowledge. Without an accurate idea of the conformation of the body, and of its integral parts, it is obvious no insight could be acquired into the functions of the various organs and tissues, and the mode of their development. From structure to function is a natural transition, hence the anatomists may claim that by their earnest, patient, and continuous efforts, they have laid the foundation for physiological research. Early in the present century the microscope was introduced as an instrument of investigation, and by its means, chiefly owing to the labors of Bowman, the study of minute anatomy or histology, especially in reference to embryology or development, gave so great an impetus to the entire subject that it may be said to have placed it almost on a level with the exact sciences. By the aid of the microscope, Schleiden discovered the cellular structure of vegetable tissues, while a little later on Schwann demonstrated the fact that all living structures are made up of minute particles of living tissue called cells, which, subsequently, the physiologist determined to be the seat and source of all forms of vital activity. It was about the same time that Mohl gave the name of 'protoplasm' to the hyaline material which forms the lining of cells in plants, a term subsequently given to the essential constituent of all living structures.

"It is scarcely necessary to dwell further on the light which was shed upon the various structures of the body by the study of histology. No branch of human knowledge represents more thorough and painstaking investigation than does this one—there is none that testifies more to the wondrous power of man in unlocking the mysteries of Nature. Whether we are to regard anatomy in the light which it throws upon the processes of development, or in that which it sheds upon the structure of such intricate organs as the eye, the central nervous system, the various glands, etc., it is impossible not to recognize its study as the foundation upon which the superstructure of medicine is built; and it is because the foundation has been well and carefully laid that the edifice raised upon it has such strong and goodly proportions.

"*Physiology.*—Turning now our attention to physiology, we find that, unlike the progress which has been made in anatomy—a progress which has been steady, and, except at the time of the introduction of the microscope into use, free from those convulsions of thought which constitute epochs or eras in the history of a science—physiology has developed not by stages, but by bounds, each period of change revolutionizing that which was learned or taught beforehand. In 1628 Harvey discovered the circulation of the blood, an event which led at the time to a scientific *renaissance*. Before this the crudest notions prevailed with regard to the processes of life. The idea of the circulation was that the blood swayed backward and forward in the veins 'like the tide of Euripus between Attica and Euboea.' At this time anatomy was but in its infancy, chemistry and pathology were almost unknown, and the knowledge of zoology and botany might be said to be confined to that obtained by studying the natural history of drugs employed in the treatment of disease. Some degree of order in thought resulted from Harvey's discovery; it gave a special stimulus to the study of anatomy, and awakened an interest in the study of

physiology which, under the deductive method of inquiry, led to considerable speculation regarding the origin of life and the vital functions generally. The progress made was, however, slow and unequal. Theorizing took the place of observation. It was considered an evidence of high intellectualism to philosophize; to observe or experiment was regarded as fitted only for those of inferior mental mold.

"The Relation of Physics and Chemistry to Physiology."—When, however, physiology by a gradual process of transition became a science of induction, when observation and experiment were made preliminaries to induction, Helmholtz mentions some curious instances which may be cited as showing the position physiology then held, and the prejudices which it had to overcome. He, himself, was strongly urged by a colleague in the university, who interested himself in the reorganization of the medical school, to divide the subject of physiology so as to be left free to devote himself exclusively to the intellectual part of it, while the experimental part could be undertaken by a colleague of inferior mental caliber, but quite good enough for that purpose. Not long before it was thought that to examine with the stethoscope was a crude method of investigation, that it lowered and debased the patient, who was after all a human being, and that a physician with a clear mental vision did not need such aid. In reference to the use of the ophthalmoscope, a celebrated surgeon gave it as his opinion that it was dangerous to allow crude light into the eye; while another said that it might be useful for physicians with bad eyes—his, however, were good, and he did not need to use it. These are instances which show how much the tendency of opinion at the time was against the use of experiment as a means of investigation of phenomena. Authority and prescription dominated procedure both in practice and in teaching. But an unseen force was steadily leading up to an inevitable change in the methods of inquiry. The study of natural philosophy had attracted the attention of the keenest intellects; the laws which had been discovered in mechanics, hydrostatics, optics, acoustics, electricity, and magnetism, began to be applied in the explanation of the processes of life, and the experimental methods employed in the physical laboratory were borrowed by the physiologists to determine the mechanics of the circulation, the laws relating to muscular and nervous responses to stimulation, the processes of absorption, and the phenomena affecting the special senses. About the same time chemistry had been making rapid strides, and great attention had been given to the study of organic bodies with the result that many which had been regarded as the product of vital processes were made in the laboratory. It soon came to be recognized that, for the most part, conditions which were supposed to be the result solely of vital energies, were capable of being split up into processes identical with those met with in the non-living world, so that, with some notable exceptions—especially those relating to absorption and certain nervous phenomena, and with the full admission that physiology can never become more than a mere branch of physics and chemistry—we have come to recognize that the true method of studying a vital phenomenon is to analyze it into its *measurable* physical and chemical constituents.

"It is not difficult to realize the effect of the application of these sciences to the methods of physiological inquiry, and the origin and scope of modern physiology dates from their use. It dates from the time of Joannes Müller, of Berlin, followed by those whose names are household words to us all—Brücke, Du Bois-Reymond, Ludwig, and Claude Bernard. It is important to note that nearly all these great men were physicists as much as physiologists, and that most of the methods of investigation employed by them have been designed and in most in-

stances made by themselves. With these notable exceptions, it may be said that to these men alone is due the scientific position held by physiology at the present day, though England can claim, through three of her sons, that she, too, has made three landmarks in its history—the circulation of the blood discovered by Harvey, the functions of the anterior and posterior roots of the spinal nerves by Sir Charles Bell, and the reflex function of the nervous system by Marshall Hall.

"What Medicine owes to Experimental Physiology."—In the routine practice of medicine and surgery we are apt, perhaps, to lose sight of what we owe to physiology, especially to experimental physiology. From experiments upon animals we have learned the mechanism of the sounds of the heart, the position of each sound in the cardiac cycle, and the conditions of the cardiac muscle. To these experiments we can trace most of what is known regarding the pulse; the conditions which affect its rate and tension. So, too, with the phenomena of respiration and the causation of cough. In studying the different forms of paralysis of the cranial nerves, we are utilizing the researches of Reid; in observing lesions of the vaso-motor system, we are dealing with phenomena which attracted the energies of men like Pourfour du Petit, Schiff, Goltz, and Gaskell; in noting disturbances affecting the brain and spinal cord, we are drawing from the information supplied to us by the experimental observations of Hitzig, Fritsch, Ferrier, Brown-Séquard, Marshall Hall, and Charles Bell. I do not in any way exaggerate when I affirm that all that is exact in medicine which refers to organic function is based upon the results obtained by painstaking and laborious experimentation. So great has been the progress made, so difficult is it to master all the facts that have been ascertained before any further development can be made, or fresh fruit garnered by those who represent continuity of work in this branch of medicine, that physiology has necessarily become specialized as a subject of teaching, and no modern school can afford to permit any teacher to deal with it without requiring that he should give to it his undivided attention.

"The Influence of Physiology on Pathology."—The influence which the study of physiology has exercised upon its twin sister, pathology, is easily understood. As physiology is the science of normal function, so pathology represents to us the deviation from the standard, the points of departure from health, the causes which produce such aberrations of function, and their effects upon the organs and tissues of the body. A few words will suffice to deal with the progress made by pathology during the century. Like physiology it, too, has had its periods of revolution, one of which may be regarded as probably the most pregnant of potentiality in the history of medicine—viz., the study of those minute vegetable cells known as bacteria, and their effects when grafted on the human organism.

"In 1760 Morgagni published his celebrated treatise, in which, for the first time, the attempt was made to localize disease to *particular* organs of the body, while a most accurate account was given of the anatomical changes produced as a result of the morbid action. There was, however, no attempt made by Morgagni to indicate with any degree of precision the ætiological factors in the production of disease. In the first decade of this century Bichat went a step further, and localized pathological changes in certain tissues of the organs of the body. Then came, late in the 'fifties, the epoch-making discovery of Virchow, who published his work on cellular pathology, a work which raised pathology from being, as it then was, a repository of dry, disjointed facts, disjointed in their relation to each other, to the rank of a science, a science based on etiology and constituting, in conjunction with therapeutics, the essential part of modern medicine. What a monument of work does not

Virchow's life represent? How keen and penetrating has been his vision, how cogent his reasoning! Starting with an investigation of all that had been done by his predecessors, whose researches and observations he verified for himself, he carefully extended the scope of their inquiries by physiological experiment and clinical observation until he obtained that result which now constitutes the cardinal element in the explanation of all diseased processes.

"Schwann and Goodsir had demonstrated the cell as the vital unit of all organized structures. Under normal physiological conditions these cells had to perform a definite function, retaining their original and characteristic forms so long as the function performed by them was normal. Virchow, by a careful study of the life-history of the cells, noted certain changes occurring in them, connected these changes with perversion of function, and, working still further backward, was led to study the altered condition of growth and environment that determined both alteration of function and of structure. He thus established such a correlation between normal and pathological biology, that in many cases it was almost impossible to determine where the one becomes merged into the other; and, furthermore, he showed that the marked changes observed in the altered cells, tissues, and organs of the body were shown to be as much the result of altered environment as the cause of perverted function. The effect of Virchow's teaching was far-reaching. When it was ascertained that the bodies of animals were composed of structures similar in many respects to the analogous parts met with in man, and that the cells composing these parts were also alike as regards their structure and function, comparative pathology became an object of close study and observation, culminating in those experimental researches which have influenced to so marked a degree our knowledge of disease and its treatment.

"*Bacteriology*—Meanwhile, as Virchow was pursuing his researches, a branch of biology, surpassing in the interest which surrounded it, was making steady progress—viz., bacteriology, adding another to the quota which all branches of human knowledge pay to medicine. We have the authority of Bacon that, even in his day, it, above all the other professions, could claim the palm for learning. How much more can this distinction be claimed for it to-day! When Latin served the purpose of welding all Western races together, it was the language of medical literature. Medicine alone, among the faculties of a university, has an unbroken tradition of over two thousand years from the Greek; it retains even still the relics transmitted to it by the physician of Cos. I have touched on the contributions which it has exacted from the natural and experimental sciences, while to pathological medicine in particular every branch of biology must bring a part of its treasures—anthropology, ethnology, and comparative anatomy. Thus we can see, as has been well said, at one end peoples, nations, and races; at the other a tiny speck of nucleated protoplasm, which not alone appears capable of supplementing our knowledge of the larger units which constitute the organs and issues of the body, but the study of which is probably destined, more than any force we know of in Nature, to influence the future of the human race." . . .

"*Pasteur's Researches*.—The history of bacteriology so far may be said to be written in the life and labors of Pasteur, supplemented by the records of what has been done by Lister, Chauveau, and Koch. There is no tale of Jules Verne which is more capable of exciting the imagination than the story of Pasteur's work. Having demonstrated the dependence of fermentation of different kinds upon different living organisms, which he classified into those that live in air and those to which air is fatal—aerobic and anaerobic organisms—he formulated

his method of dealing with diseases affecting vinegar and wines, and almost at a stroke abolished the maladies affecting both. He next directed his attention to the investigation of the diseases of the silkworm, at the time when the silk husbandry in France was in a state of ruin. Having discovered the minute organisms which caused the disease in the blood of the worm, he followed them through all the phases of the insect's life—through the egg, through the worm, through the chrysalis, through the moth. As by an enchanter's wand, at Pasteur's bidding, the disease was almost eradicated. Then came his *Studies on Beer*, and subsequently those observations and experiments upon the germ theory of disease which led him to adopt the principle of *virus attenuation* in the treatment of such diseases as fowl cholera, anthrax, quarter evil, and, finally, hydrophobia. Meanwhile, the clear mind of Lister was seizing upon the germ theory of fermentation and putrefaction. The organisms which produced both were in the atmosphere. If they came in contact with an open wound, pus formation was the result. A further fact was established by Lemaire in an adverse criticism of Pasteur's views—viz., that the presence of carbolic acid was inimical to the life of the higher animals and plants, and also to the lower organisms; the addition of a small quantity of carbolic acid to fluids in which fermentation and putrefaction ordinarily take place preventing the incidence of these processes. From these two data Lister built step by step the theory and practice of antiseptic surgery—a theory and practice which have saved thousands of lives and revolutionized the treatment of wounds and the routine of surgical practice." . . .

"*The Action of Bacteria in Disease*.—Before leaving the subject I may be permitted to mention an instance suggestive of the rôle played by bacteria in disease. We know that in the process of fermentation yeast grows and multiplies by extraordinary activity, splitting up the sugar into CO₂ and alcohol, till its further progress is arrested by the alcohol which is a product of its own activity. It is precisely similar with bacteria, when taken into the body as in any infectious fever. The organisms multiply at the expense of the fluids of the body, form ptomaines which, like the formation of alcohol in fermentation, bring the action of the microbes to an end. It is to the presence of these ptomaines in the blood that we may attribute the feverish disturbance that is set up—a disturbance unfortunately that is often fatal to the host as well as to the invader. An interesting experiment serves to show how the cells of the body resist the invasion of bacteria. A small quantity of a culture of known virulence was injected into a rabbit; a local inflammation followed, terminating in the formation of a small localized abscess, but no other bad effects followed. In another rabbit a similar injection was given, but, at the same time, a quantity of chloral was injected sufficient to paralyze the leucocytes; general infection rapidly followed, and the animal very soon died. In this instance it was found that the leucocytes examined on the warm stage showed no change of shape, and were perfectly sluggish in their movements. They took no notice of the bacteria when introduced into the subcutaneous tissues, and these then passing into the lymphatic spaces, ultimately reached the circulation, and so led to their wide-spread diffusion through the different organs with an attendant fatal result. This experiment may be taken as suggestive of the way in which the effects of alcohol taken to excess, or a poisonous influence of a like kind, may lead to an attack of fever, erysipelas, or some septic disease.

"*Bacteria in Relation to Animal Plagues*.—Two instances may be mentioned to show how the progress made by bacteriology has been utilized in the removal of animal plagues. Some eighteen months ago a plague of field mice in Thessaly and its

neighborhood had assumed such proportions that an entire field of corn was destroyed in a night. Loeffler, who has made such important researches in connection with the organisms of diphtheria, discovered a bacterium, the *Bacillus typhi murium*, which is pathogenic for mice of the species *Arvicola arvalis*; the field mice in Thessaly belonged to an allied species. Preliminary investigations showed that the bacillus was fatal to these also. A culture fluid was carefully prepared, and to this were added pure cultures of the bacillus. It was first shown that the bacillus was harmless to all domestic animals and to man. Peasants came from different districts, each bringing with him a basket of broken bread, which was steeped in the inoculated fluid, and the peasants were dismissed with instructions to put into each mouse-hole a portion of bread. The mice ate freely of the impregnated bread, with the result that, after some days, dead and dying mice were found scattered through the field. In less than four weeks the plague had disappeared, and the harvest was saved. Professor Bilgard, director of the research station in San Francisco, records a similar procedure, which rescued the country from a destructive 'field bug' of a species akin to the Colorado beetle.

"*The Future of Medicine Dependent on Pathology and Bacteriology*.—Of the field that is opened up in connection with preventive medicine, and in the treatment of such diseases as cholera, tuberculosis, tetanus, diphtheria, typhoid fever, and infectious diseases generally by the study of bacteriology, it would be at present rash to speak. Much has been done, great advances have been made, and great principles established. It may not be many decades distant when some startling results will be attained. To my mind, it is to bacteriology and pathology generally that we must look for the future of medicine. Fortunately, the methods of inquiry employed, those necessary for the progress, nay, for the existence of the human race, have stood well the strain fomented by misguided and ignorant faddists, but the issues at stake are too vital to be imperiled by what Sir William Gull described as the greatest cruelty in the whole world—the cruelty of ignorance. Experimental physiology and pathology have simply shared the fate which attended great discoveries in science, arts, and medicine. In the last we have had the spectacle of Vesalius, the great reformer of anatomy, being formally cited before the theological faculty of Salamanca, and Servetus being burned at Geneva with his book in which he described the circulation through the lungs. For a considerable time after the discovery of the circulation by Harvey, the treating of his doctrine was proscribed by the University of Paris, and to believe in it led to expulsion from the university and forfeiture of degree. Nor can it be said that the errors taught have been confined to the ignorant. Kant was so blinded by prejudice as to denounce vaccination as 'the inoculation of bestiality.' History is always repeating itself, and so the men of progress in medicine have had to take their share of contumely and bear more than their share of malice and misrepresentation from the anti-vivisectionists. They have stood their punishment, for the most part, with the stoicism of the ancient martyr. Yet the provocation to retaliate has been great. Scarcely any great advance in the doctrine of immunity has been made without the individual workers undertaking the risk of watching in their own persons the effects of inoculation of attenuations of the most deadly poisons.

"Quite recently Haffkine, in order to test the value of protective inoculation against cholera, inoculated himself with an attenuated virus of the disease. Very considerable constitutional disturbance, lasting for six days and attended with a rise of temperature, resulted. Hankin, and some eight others, also submitted themselves to the inoculation experiments, and with like results."

Medical Teaching in Various Countries.—At a meeting of the Suffolk, Mass., District Medical Society, held on October 28th, Dr. Charles F. Withington, instructor in clinical medicine in Harvard University, read a paper entitled *Medical Teaching in Germany*, which is published in the *Boston Medical and Surgical Journal* for December 14th. He remarked that Americans who were likely to consider the subject of medical study in Europe fell into three classes, and proceeded as follows: There were, first, "the small number of those who, either having received their general education abroad, or having been impressed with the excellence of European medical teaching, decide to take their entire course of medical study and their degree at some European university. I can not," he said, "but look upon this as an error for those who intend to practice in our country, for such men find themselves on entering upon their professional career at home at a disadvantage in the following ways: Their therapeutic armamentarium is rather different from that to which American patients are accustomed, and though they can, of course, readily enough learn the differences between the European and the United States pharmacopœias, yet they are likely to find that a good deal of the sort of medication which is swallowed with avidity or at least with resignation by the hospital patients of Berlin or Vienna, will meet with decided opposition from the self-respecting American stomach. Again, the man who has received his entire medical education abroad knows nothing of these professional traditions and usages to which patients here expect conformity, and which alone can make one's relations with his fellow-practitioners endurable. Finally, a lack of personal acquaintance with any of one's professional neighbors or with any of the older or more prominent physicians of the city or State where one is to settle, must be counted as a great disadvantage.

"The second and numerically the largest class of persons contemplating foreign medical study is composed of men who have taken their medical course and degree at home, but who wish further preparation for practice, and are considering whether they can best secure such practical experience as they desire at home or abroad. Yet it must be freely admitted that if these young men can afford but one year in addition to their required curriculum, a resident house-officership in a good general hospital offers advantages superior to any they can find under other circumstances in any country.

"Third, comes a class which I hope and believe is destined to become an increasing one—of men who, having already become established in practice, feel a need of temporarily interrupting their work by further study, with a view either to specialization, to consultation practice, or to such a picking up of lost threads, such a broadening of the professional horizon, as Harvard offers to her professors in the 'Sabbatic year,' but which we medical practitioners, while we need it quite as much as any other class of professional men, find it harder to get. If it is not possible to obtain it every seventh year, yet at a longer interval or for a shorter period, it is not, as I have reason to believe, impracticable. The practitioner who, with any of the motives I have just sketched, wishes to change temporarily his horizon, and to 'go to school' again, will generally, if possible, cross the water to get what he wants, despite the excellent polyclinic and post-graduate advantages that our large cities now offer. . . .

"Medical study in Germany differs from that in England and in our own country, in that it is always pursued at a university, where it shares in the broadening influence produced by the bringing together of various departments of learning about one common center. There are about twenty of these universities, the largest being those of Berlin and Munich. As the capital of the chief German state, Berlin stands easily the

intellectual center of Germany and probably of the world. Her university, though less than a century old, comprises nearly seven thousand persons and numbers among its professors some of the brightest lights in the firmament of science and letters.

"The German student of medicine passes to his professional studies either from the gymnasium, where he is supposed to have spent nine years in liberal studies, consisting chiefly of classics and mathematics; or he may come to medicine from the Real School, where modern languages and science replace the classical training of the gymnasia. The gymnasium, however, is held by the best medical men, and by the government also—if we may judge from the distribution of official patronage—as the only adequate preparation for professional study, the Real School being considered as an educational concession to the popular element. As the gymnasium takes boys at an average age of about nine, they are ready at eighteen or at nineteen (adding the year for compulsory military service) to begin their medical studies, unless they choose, as a few do, to take some semesters with the philosophical faculty of the university before passing on to the medical. Unless they do this, their basis of general culture is less than that of our best medical students, for the gymnasium can not be held as at all equal to our best American colleges. On the other hand, the Germans gain two or three years in time over our college and medical students.

"The required medical course occupies eight semesters (four years). At the end of the second year comes the first examination, the *tentamen physicum*, which covers chemistry, organic and inorganic, mineralogy, physics, botany, anatomy, physiology, zoology, embryology, and histology. Near the end of the course occurs the examination on the other usual subjects of medicine, for the doctorate, or medical degree, in case the student chooses to apply for it. But as it is in many cases held to be a useless luxury, being rather expensive and quite unnecessary for medical practice, the student often reserves his money and energy for the state examination, which is essential to engaging in medical practice, which is a severe examination, conducted by government officials, and which makes of every successful candidate in a certain sense an officer of the government and invests him with corresponding authority and responsibility.

"I do not believe that the average German medical student is as well equipped as the average graduate of our best schools, that is, those having a four years' course. For, in the first place, the time of actual study is not so long. The winter semester nominally lasts from October 15th to March 15th, and the summer semester from the middle of April till the middle of August. Here are apparently nine months of term time. But no pretense is made of beginning work before November 1st or of continuing it after March 1st. In fact, the 'vacation courses' begin March 1st, two weeks before the close of the regular term for which the students have paid. The same amputations are applied at both ends of the summer semester, and when to these lengthened vacations we come to add a two weeks' holiday at Christmas, and the first, second, and third days' celebration of the various religious and secular festivals, there is probably not left more than seven months net out of the twelve for work.

"Again, our academic 'hour' for teaching purposes is fifty five minutes. In Germany, the first fifteen minutes are always thrown off and the remaining forty-five minutes are, according to my observation, often considerably further reduced. So that the German lecture or clinic averages from twenty to twenty-five per cent. shorter than our own.

"As to the instruction, it is generally admirable. The ex-

amination is thorough, the diagnosis shrewd, the literature discussed voluminous, recent, and widely drawn. But despite, or perhaps because of, the excellence of the elucidation, the average student gets probably less advantage from it all than he would from trying to unravel a few obscure cases for himself. To be sure, he serves his time as *Praktikant*, when he makes more or less for a 'snap' diagnosis. But he rarely works up a case in careful detail. His point of view is not so much the bedside as the lecture benches, for, at least in Berlin, he rarely gets into the hospital wards. He does not read very much, and evidently sets great store for his examinations upon the careful pen-and-ink notes which he has kept of all the cases he has ever seen. In a word, he is made the subject of a constant intellectual *gavage*, in which, if you will allow the figure, the pabulum is of the best quality, and is fed to him with an unsparing hand; but it is so thoroughly predigested that very little work is left for his own intellectual powers to do, and they are likely to develop less activity than might otherwise be gained.

"Conditions like the foregoing, which are not specially favorable for the student who is learning to make diagnoses, are, on the other hand, of advantage to the practitioner. From the latter point of view, the abundance of clinical material is very useful. Not only is the material very great in every European city where a large portion of the population is so poor that it must receive medical aid in sickness, but it is exceedingly available. Patients are always willing to be shown, being generally treated with fair consideration, and even when the visitor notices something lacking in this regard, it must be confessed that the patients themselves do not generally appear to be aware of the omission. Post-mortem examinations are, of course, made in all fatal cases, and hence clinical study is never subjected, as must often happen in America, to the incompleteness due to lack of pathological evidence.

"The chief clinical teachers can, when they wish to illustrate any particular point, bring forward an immense amount of material. For instance, Mendel is said to have shown at one demonstration of epilepsy thirty-five patients in an hour. Certain of the medical *causes célèbres* make a living by going about from clinic to clinic, the fact that they are already under treatment with one clinical teacher making no difference in their acceptability to another. Special attractions are sometimes even sent for and fetched in a carriage like our coy voters on election day.

"To work up properly such immense amounts of material involves tireless industry, and perhaps this is the most striking characteristic of the great medical teachers of Germany. The *breadth* of knowledge of such a man as Senator is something almost incomprehensible. If it be true, as has been said, that Vienna stands for specialism in medical training, it is also true that Berlin stands for breadth of medical learning. Senator's work covers not only the usual field of clinical medicine, but nervous diseases equally well, while at his polyclinic one of his most popular exercises is in connection with the diseases of children. Of course, much of the work, bacteriological, microscopical, and clinical, is prepared by his assistants, but one feels that it is all done under his personal orders and supervision, while his incessant stream of publications indicates over what a long frontier of medical science he is pushing forward his explorations. . . .

"The subjects best taught in Berlin are probably internal medicine, which I have just referred to, nervous diseases, and bacteriology. . . .

"In the youngest of the medical sciences, bacteriology, Berlin occupies, as is well known, a leading position. To illustrate at once what is being done in this branch, and at the same

time to serve as an example of the thoroughness with which the Germans organize and carry on scientific investigation, let us briefly describe one of the newest medical institutions of Berlin, one so new that many of my hearers who are familiar with that city have never seen it. This is the Institution for Infectious Diseases, which may be regarded as the first fruits, and perhaps thus far the most useful outcome of Koch's tuberculin discovery. In the enthusiasm which followed the announcement of tuberculin, the government promptly voted the sum necessary to carry out the enterprise, and the institution was opened in August, 1891, with Koch as director, and a large staff of skilled assistants, among them Pfeiffer, Behring, and Brieger.

"The institution is situated just west of the Charité Hospital, and covers a tract of land about six hundred and fifty feet by two hundred feet in dimensions. It comprises seven wards or barracks of most approved hygienic construction, having all necessary kitchen and service rooms, baths, closets, etc., a general ward, isolating rooms, and a sun-room or sitting-room for patients who are able to be up. These provide for men, women, and children suffering not only from such contagious diseases as diphtheria, but from tuberculosis in all its forms, including joint affections and lupus. One building has even been utilized for variola, while others contain puerperal fever, and even influenza-pneumonia. Rather too heterogeneous a mixture of infections, we may say, for the good of the patients treated; but a tolerably good isolation is practiced, and the grouping of so many infections directly about the center of bacteriological research gives obvious advantages for study. In the administration building is a small amphitheatre for lectures, having, among other equipments, a stereopticon and white screen for the display of microphotographs.

"Behind this building stands another, which serves two important purposes: first, that of disinfection. The articles (clothing of patients and bedding from the wards) go through a regular order of rooms into and out of the steam disinfection apparatus, and the disinfector himself is subjected to a bath and change of clothes between the times he loads and unloads the apparatus. Under the same roof, but securely separated, is the autopsy room, where the director personally assigns to various members of his staff the work—bacteriological, chemical, and microscopical—which the case demands. . . .

"The educational value of this institution is, of course, greatest to the regular staff of workers, including those under physicians who are detailed to this duty from the Charité. But their work is, through publication, made the property of the scientific world, while men are always going out from it, as did the clever Japanese, Kitisato, to extend the work in other lands.

"For the average student who goes to Berlin to study bacteriology, the Hygienic Institute is a more available place for personal practice in bacteriological work. In this building is maintained the sanitary watch and ward over the city. Regularly every two weeks are brought hither specimens of drinking water from each of the eleven different stations which supply Berlin. These specimens are tested both chemically and bacteriologically, and if the filters (also devised in this institution) are found not to be doing their work, immediate attention is given to the matter. Here are good opportunities for practical study under the instruction of Rubner and Günther.

"Courses for beginners are organized several times in a year, each course occupying all the time—that is, eight hours daily, for a month. The work is so systematized that no time is wasted. Each man makes his nutrient media, plants and dilutes his cultures, stains and examines his growths, and in

general gets a *coup d'ail* at the subject, which, of course, is superficial, but which is of great service, at least in enabling one to judge of what the special workers in this department are doing. Other more advanced instruction, of course, is also given here.

"In closing, I have only a few practical suggestions to make to any contemplating medical study in Germany. In the smaller universities you will probably spend less money, learn more German, see fewer cases medically, and learn far less that is of interest non-medically.

"Having decided to study one or more semesters in Berlin, you can matriculate if you see fit, though it is not necessary. For this nothing is necessary but your passport as a citizen of the United States. Your medical diploma is not of the slightest use. Matriculation gives you a right to attend any 'public' courses, gives you some reduction of price at theatres and concerts, and confers a certain immunity against police arrest, which may be convenient if you are sportively inclined. Neither need you be deterred by age from matriculating, for you will find among your fellow-students white-haired men in the sixties. Matriculation costs about seven dollars in money and an hour or two in time. If a matriculant, you pay through the university *quaster*; if not, in person to the respective teachers for whatever courses you elect. The usual price for a private course occupying two hours a week throughout the term is five dollars, and for a more or less number of hours in the same proportion, so that fifty dollars for a term will pretty thoroughly fill one's time, twenty hours per week of private courses and as many public courses as one can get time for. There is also usually no objection to an occasional attendance at other clinics than those for which you are regularly enrolled."

The New York Society for the Relief of Widows and Orphans of Medical Men.—At a meeting of the board of managers held on December 20th, the president, Dr. Ellsworth Eliot, made the following remarks:

"Eleven widows and three children of deceased members relieved; \$6,610.30 added to the permanent fund, now amounting to \$189,157.06; the membership increased by thirteen, now numbering one hundred and forty-three; and all this at an expense of only \$180.30—such is the record of the last year, and it will compare favorably with that of any preceding one.

"In its foundation our society had for its model that of the same name in London, established in 1788, and such are our record and prospects that the mother need not feel ashamed of the daughter. Of course their capital—£88,057 10s. 6d. (about \$440,286)—greatly exceeds ours. They have had legacies from fifty-eight persons, three of £5,000 each (\$25,000), one of these, and the last of the three, being that of Sir Erasmus Wilson, the distinguished dermatologist, in 1887. Our benefactors number fifty-five, most of them having contributed \$150 each. The name in this list leading all the rest is that of Alonzo Clark, whose gift is estimated at \$20,000.

"According to the last publication of the London society, the allowance to a widow is £50 (\$250) and a Christmas present of £5 (\$25), making £75 (\$275) for the year. The largest allowance to their orphans is £12 (\$60) with a Christmas present of £2 (\$10), making the annual amount £14 (\$70). The provision in our by-laws for giving each child \$50 as an outfit at the time when the annuity ceases I do not find in their regulations.

"Their expenses last year exceeded \$1,200 (£247 3s. 10d.). Of this the secretary had \$630 (£126). The amount of our expenditure, as above mentioned, is \$180.30, our secretary being allowed an honorarium of \$50."

"Their 'grants and expenses' exceeded their 'total receipts

available for payments' by £73 6s. 4d. (\$366), this amount being their deficit. We added, as previously stated, \$6,610.30 to our permanent fund. Happily, our by-laws prohibit deficits. Their membership is three hundred and twelve—seven less than the previous year. The number of their widows receiving relief is fifty-eight, and the number of children twelve. The large number of the former is astonishing. Should our widows ever bear as large a proportion to our membership as is the case with the London society, we should be compelled to reduce the allowance, or gifts to our principal must be large and numerous.

"A great difficulty during the past year has been the safe investment of our funds at a fair rate of interest. We have had thousands of dollars for which we received but two per cent."

"The secretary of the London society informed me last summer that it required much effort to keep their numbers good and to make additions thereto. Such has been the experience of our society. For a number of years our members, according to the annual statements, were fewer and fewer. I believe that for several years not more than one or two persons have voluntarily sought membership. Those who have joined us have done so through personal solicitation. The energetic president of the New York Physicians' Mutual Aid Association, happily one of our board of managers, recently informed me that not more than six out of a hundred applied for membership in that society without personal urging. Printed documents and annual statements do not bring members. Physicians should make provision for themselves and any family they may leave. No one in our profession in our city need die in straitened circumstances. By the payment of from \$15 to \$20 in the Physicians' Mutual Aid Association, his representatives, in the event of his death, can immediately command \$1,000. After a suitable probation and not a large payment in our society he can provide generous relief for a widow and orphans, should they be in need of it. The medical profession in no city in the world, so far as I can learn, are as fortunate in this respect as the physicians in generous New York.

"Our board of managers is much the same as last year. Two faithful ones, Dr. Laurence Johnson and Dr. William T. White, whom death has removed, we shall greatly miss. Happy will it be for the society if their successors prove equally attentive to their duties."

The International Medical Congress.—Dr. A. Jacobi, chairman of the American National Committee of the Eleventh International Medical Congress, has received the following communications from the secretary general:

First. Papers to be read in any of the sections of the congress should be announced on or before January 31, 1894, to the secretary general, Professor E. Maragliano, Ospedale Pammatone, Genoa, Italy.

Second. The title of the paper ought to be accompanied with a brief abstract of its contents and conclusions.

Third. The programme to be distributed will contain the titles of all the papers announced before August 31, 1893, and since.

Fourth. The reductions granted by the railway companies months ago will be available from March 1 to April 30, 1894.

In the interest of such medical men as sail for Europe before official cards have been received from the general committee, Dr. Jacobi proposes to supply, in as official a form as he thinks he is justified in doing, credentials which are expected to be of some practical value. It is suggested, besides, that a passport may increase the traveler's facilities.

A letter of the secretary general's, dated November 29th, informs Dr. Jacobi that "traveling documents" will be sent to

the address of every subscriber on or before February 15, 1894; and after that date "congressists" will have to apply to Dr. Jacobi.

It also contains the following regulations of former circulars: Members' dues are five dollars (money order to Professor L. Pagliani, Rome); guests' (wives and adult relations'), two dollars; medical students', no fees. All are entitled to traveling documents. Reductions on the Italian railways are available from March 1st until April 30th.

The Therapeutic Uses of Exalgine.—In the *Lancet* for November 25th Dr. Thomas D. Savill gives details of a number of cases in which he used exalgine to relieve pain. The cases included rheumatic arthritis, cephalalgia, obscure abdominal pain, shooting pains in the head and neck in a woman suffering from cardiac valvular disease, gouty arthritis, traumatic epilepsy, etc. He says: "The drug can be readily administered in the form of a powder, especially put up in 'cachets,' or it may be dissolved in water to which a small proportion of spirit has been added, or even in pure water if this be used hot. In fact, the last-mentioned method of administration is, on the whole, the most convenient one, for if six fluidounces of boiling water are poured on to forty-eight grains of the crystals a clear solution containing eight grains to the fluidounce is formed, which does not precipitate in cooling; a teaspoonful of this solution thus represents one grain of the dry salt. This keeps well, is devoid of disagreeable smell or taste, and is in every way reliable. It will be seen that the diseases for which the patients were under treatment were various; and, speaking generally, it may be affirmed that in no instance did the drug give rise to any inconvenient or uncomfortable effects even in the presence of cardiac disease or phthisis, nor did it determine any symptom of intoxication. I think that, if care is taken not to administer the drug to patients with a febrile temperature or who are constipated, no ill effects are ever likely to be experienced. These are, at any rate, the conclusions which I have drawn from my experience."

Clinical Experience with Solutions of Pyrozone.—Dr. James E. Newcomb (*Jour. of the Amer. Med. Assoc.*, November 18th) gives his experience with pyrozone in both aqueous (three-per-cent.) and ethereal (five-per-cent. and twenty-five-per-cent.) solution. He says: "I have used the pyrozone three-per-cent. solution for cleansing the nose and nasopharynx whenever there have been crusts or inspissated secretions. The full strength has been employed anteriorly by a small pyrozone atomizer, and posteriorly with the ordinary hard-rubber syringe. It has not seemed necessary to dilute the solution. Care should be taken that it is slightly warm, as indeed should be all the cleansing agents supplied to these regions. On coming in contact with the tissues, it produces a momentary tingling which quickly subsides. In using this remedy, the impression has been forced upon me that we are not always as thorough in cleansing the nasal cavity as we suppose. Often I have used aqueous and oily sprays in the nostrils until they were apparently clean, but a succeeding syringeful of pyrozone, three-per-cent. solution, would start up little masses of white foam, showing that a little of the secretion was still hidden somewhere behind some projecting shelf in the nasal cavity. On enlarged glands at the base of the tongue, if isolated, the pyrozone, twenty-five-per-cent. solution, has given considerable relief to the symptoms incident to that condition. If the adenoid masses have been large and aggregated so as to form physically a true lingual tumor, the same objection has seemed to obtain as in the turbinated hypertrophies; but, after all, we have to remember that it is on dead matter, rather than on living tissue, that the remedy finds its own peculiar sphere of action."

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